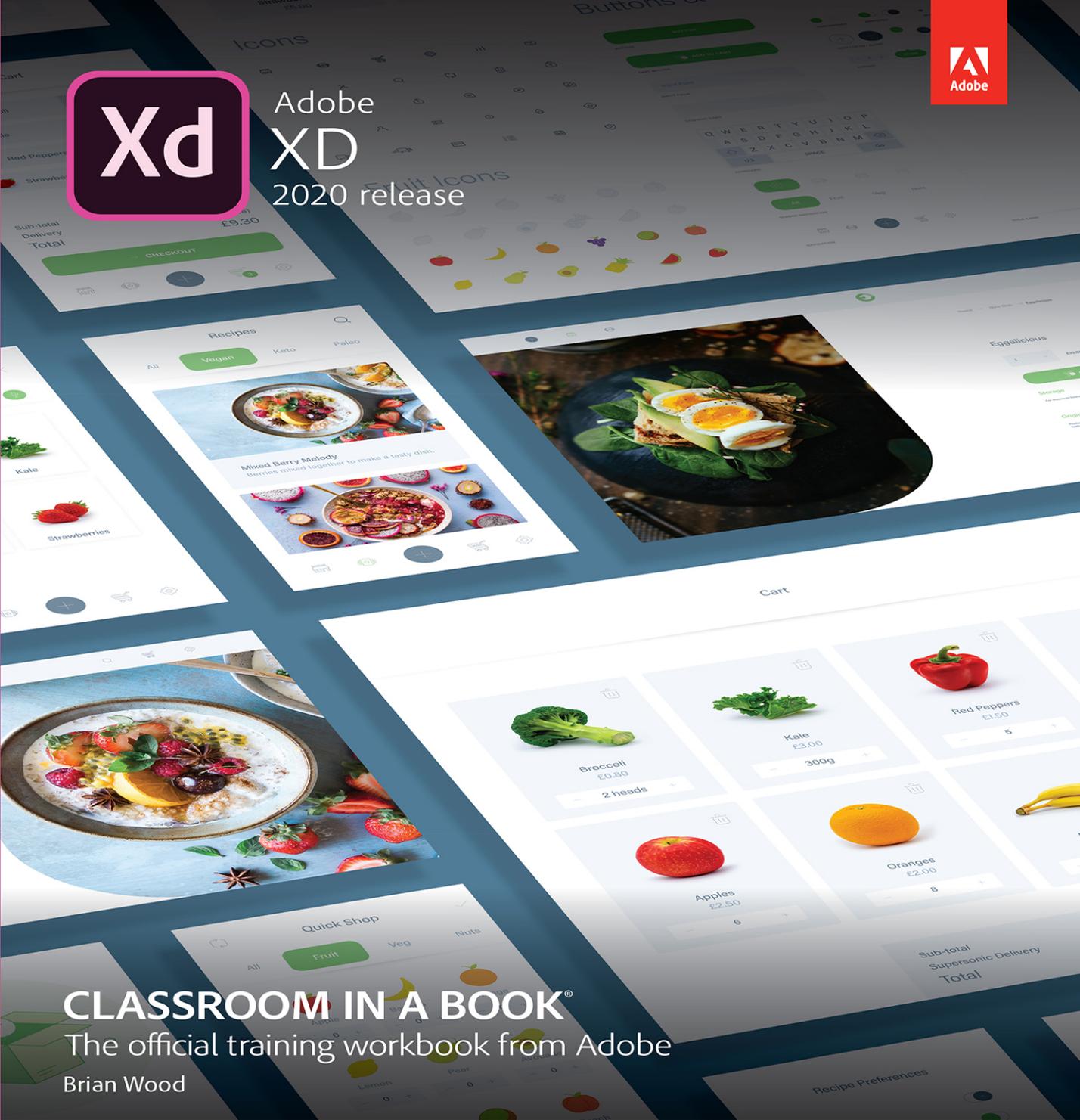




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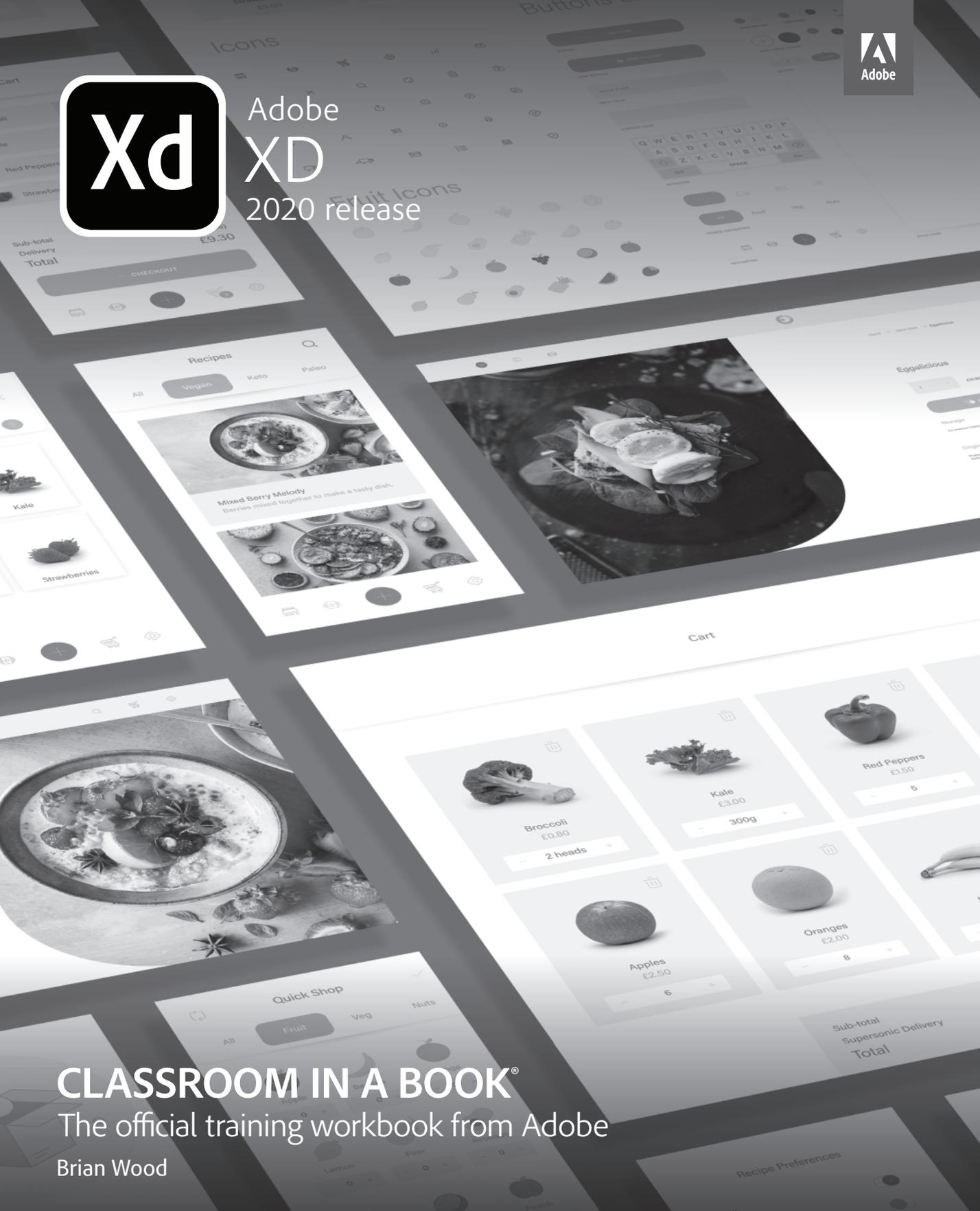
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# CONTENTS

<b>GETTING STARTED</b>	<b>1</b>
About Classroom in a Book .....	1
Prerequisites .....	1
Installing the program .....	2
Minimum system requirements .....	2
Online content .....	3
Lesson files .....	3
Web Edition .....	3
Accessing the lesson files and Web Edition .....	3
Recommended lesson order .....	4
Jumpstart .....	4
Additional resources .....	5
Adobe Authorized Training Centers .....	5
<b>1 AN INTRODUCTION TO ADOBE XD</b>	<b>6</b>
Introducing Adobe XD .....	8
A typical UX design workflow .....	8
Starting Adobe XD and opening a file .....	10
The Home screen .....	10
Exploring the workspace (macOS) .....	11
Exploring the workspace (Windows) .....	12
Working in Design mode .....	13
Getting to know the tools .....	13
Working with the Property Inspector .....	13
Working with panels .....	14
Prototype mode .....	15
Changing the view of artwork .....	17
Using view commands .....	17



Using the Zoom tool .....	19
Scrolling through a document .....	21
Navigating artboards .....	22
Previewing your designs .....	24
Sharing your designs .....	25
Finding resources for using Adobe XD .....	26

## **2 SETTING UP A PROJECT 28**



Starting the lesson .....	30
Creating and saving a new document .....	31
Working with cloud documents .....	33
Creating and editing artboards .....	34
Creating artboards with the Artboard tool .....	34
Editing artboards .....	37
Changing artboard appearance .....	40
Working with multiple artboards .....	41
Aligning artboards .....	42
Adding grids and guides to artboards .....	43
Working with square grids .....	43
Applying a layout grid .....	47
Creating artboard guides .....	49
Managing artboards with the Layers panel .....	51

## **3 ADDING IMAGES, GRAPHICS, AND TEXT 54**



Starting the lesson .....	56
Assets and Adobe XD .....	57
Importing an image .....	57
Importing multiple assets .....	59
Importing assets via drag and drop .....	61
Replacing an image .....	62
Transforming images .....	63
Resizing an image in its frame .....	64

Bringing in content from Photoshop .....	65
Copying and pasting from Photoshop to XD .....	65
Opening a Photoshop file in Adobe XD .....	67
Editing an image in Photoshop .....	69
Bringing in content from Adobe Illustrator .....	71
Exporting artwork from Illustrator for Adobe XD .....	72
Masking content .....	73
Masking with a shape or path .....	73
Editing a mask .....	74
Masking with an image fill .....	76
Editing an image fill mask .....	77
Working with text .....	78
Adding text at a point .....	78
Creating a text area .....	80
Importing text .....	81
Styling text .....	82
Duplicating text .....	85

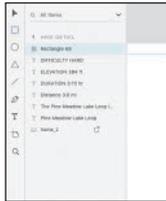
#### **4 CREATING AND EDITING GRAPHICS 88**



Starting the lesson .....	90
Graphics and Adobe XD .....	91
Creating and editing shapes .....	91
Creating rectangles .....	92
Creating ellipses .....	93
Creating polygons .....	94
Changing fill and border .....	96
Working with border options .....	98
Rounding corners .....	99
Editing shapes .....	101
Combining shapes .....	104
Editing combined shapes .....	106
Aligning content to the pixel grid .....	107
Drawing with the Pen tool .....	110
Drawing straight lines .....	110

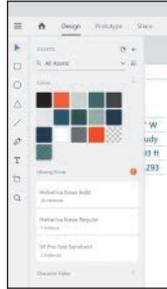
Drawing curves .....	112
Changing path direction .....	114
Editing artwork with the Pen tool .....	117
Copying the cloud icon .....	118
Working with UI Kits .....	119
Downloading the UI kit .....	119
Opening and copying from the UI Kit .....	120

## 5 ORGANIZING CONTENT 124



Starting the lesson .....	126
Arranging objects .....	127
Working with the Layers panel .....	129
Reordering artboards and layer content .....	129
Selecting content using the Layers panel .....	130
Locking and hiding content .....	133
Searching and filtering in the Layers panel .....	134
Working with groups .....	136
Creating a group .....	136
Editing content within a group .....	137
Aligning content .....	139
Aligning objects to the artboard .....	139
Setting up objects for alignment .....	139
Aligning objects to each other .....	142
Distributing the icons .....	143
Positioning objects .....	145
Aligning with temporary guides .....	145
Positioning icons for the Memory artboard .....	146
Setting gap distances .....	148
Viewing distances with temporary guides .....	150

**6 WORKING WITH ASSETS AND CC LIBRARIES 152**



Starting the lesson ..... 154

Managing assets with the Assets panel ..... 155

- Saving colors ..... 155
- Editing saved colors ..... 157
- Saving text formatting as a character style ..... 159
- Editing character styles ..... 161
- Creating components ..... 162
- Adding a component instance to the design ..... 164
- Editing a master component ..... 165
- Editing an instance ..... 166
- Making the footer a component ..... 167
- Swapping components ..... 168
- Ungrouping components ..... 171
- Using components in other documents ..... 173
- Updating linked components ..... 175
- Breaking the link to a component ..... 178

Working with Creative Cloud Libraries ..... 179

- Adding assets in XD to a Creative Cloud Library ..... 179
- Adding Illustrator assets to the library ..... 181
- Using CC Library character styles in XD ..... 182
- Using graphics from a CC Library ..... 184
- Editing library items ..... 186

**7 USING EFFECTS, REPEAT GRIDS, AND RESPONSIVE LAYOUT 188**



Starting the lesson ..... 190

Applying and editing gradients ..... 191

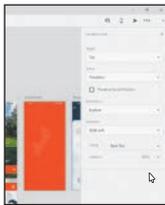
- Applying gradients ..... 191
- Editing gradient colors ..... 194
- Adjusting the direction and length of a gradient ..... 195

Understanding effects ..... 197

- Working with background blur ..... 197
- Working with object blur ..... 198
- Applying a drop shadow ..... 200

Applying blend modes .....	202
Using repeat grids .....	203
Adding content for a repeat grid .....	203
Creating a repeat grid .....	204
Editing content in a repeat grid .....	206
Editing content appearance in a repeat grid .....	210
Adding content to a repeat grid .....	210
Finishing the repeat grid .....	212
Responsive content and layouts .....	215
Responsive padding with content-aware layout .....	215
Padding examples  .....	217
Getting started with responsive resize .....	217
Grouping content .....	219
Setting manual constraints .....	220
Finishing the design .....	222

## 8 CREATING A PROTOTYPE 226



Starting the lesson .....	228
Starting with prototypes .....	229
Design mode vs. Prototype mode .....	230
Setting the home screen .....	231
Linking artboards .....	232
Previewing links locally .....	234
Editing links .....	236
Adding a connection to a component master .....	239
Taking prototypes further .....	242
Adding a hover state to components .....	242
Adding multiple states to components .....	244
Auto-animate content .....	248
Adding a drag trigger .....	251
Applying multiple interactions to a single object .....	252
Setting up content for preserving scroll position .....	254
Preserving scroll position .....	256
Working with fixed positioning .....	258

Setting up content for overlays .....	260
Creating overlays .....	262
Setting a timed trigger  .....	264
Setting timed transition content  .....	264
Adding a voice trigger  .....	264
Adding speech playback  .....	264

**9 PREVIEWING A PROTOTYPE 266**



Starting the lesson .....	268
Recording a prototype .....	269
Recording on macOS .....	269
Recording on Windows .....	271
Previewing on a mobile device .....	273
Setting up the XD mobile app .....	273
Setting up preview via USB .....	274
Navigating the XD mobile app .....	277
Previewing cloud documents .....	280
Document history .....	283

**10 SHARING YOUR DESIGNS 286**



Starting the lesson .....	288
Methods of sharing .....	289
Sharing a cloud document .....	290
Coediting  .....	293
Sharing a prototype or design for review .....	294
Updating a shared prototype .....	298
Commenting on a shared prototype .....	301
Pinning comments .....	303
Working with comments .....	305
Sharing designs or prototypes with developers .....	308

Inspecting design specs ..... 311

**11 EXPORTING AND INTEGRATION 318**



Starting the lesson ..... 320

Exporting assets ..... 320

    Exporting as PDF ..... 321

    Exporting as SVG ..... 323

    Exporting as PNG ..... 325

    Exporting as JPG ..... 330

Using plugins ..... 332

    Installing a plugin ..... 332

    Using a plugin ..... 334

    Finishing the design ..... 336

**INDEX 340**

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# 4 CREATING AND EDITING GRAPHICS

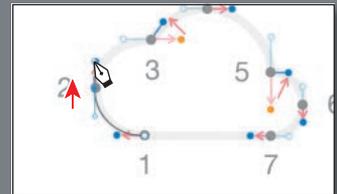
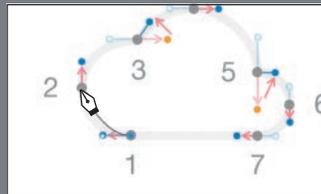
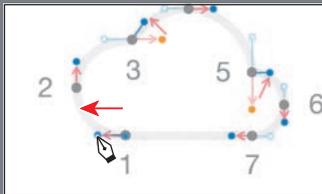
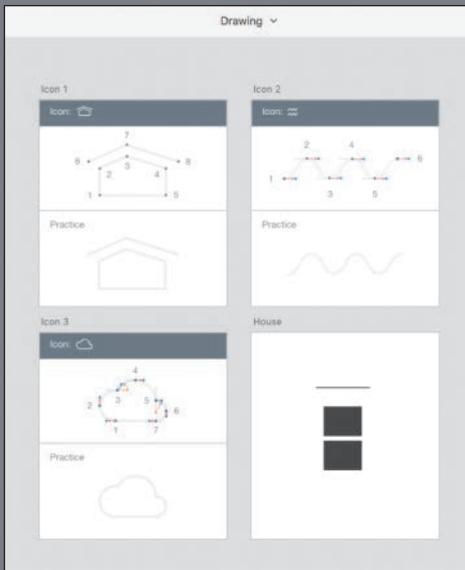
## Lesson overview

In this lesson, you'll learn how to do the following:

- Create and edit shapes.
- Change the fill and border of content.
- Combine shapes using Boolean operations.
- Draw with the Pen tool.
- Edit paths and shapes.
- Work with UI kits.



This lesson will take about 60 minutes to complete. To get the lesson files used in this chapter, download them from the web page for this book at [www.adobepress.com/XDCIB2020](http://www.adobepress.com/XDCIB2020). For more information, see “Accessing the lesson files and Web Edition” in the Getting Started section at the beginning of this book.



Aside from creating artwork using the shape tools in Adobe XD, you can also create artwork using the Pen tool. With these tools, you can precisely draw straight lines, curves, and more complex shapes.

# Starting the lesson

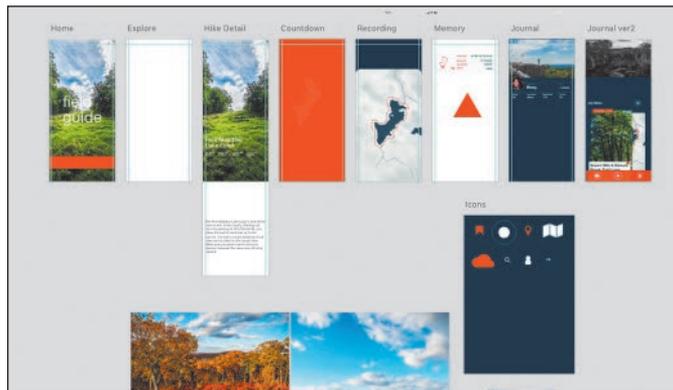
In this lesson, you'll create vector shapes in the form of buttons, icons, and other graphic elements. To start, you'll open a final lesson file to get an idea of what you will create in this lesson.

● **Note:** If you have not already downloaded the project files for this lesson to your computer from your Account page, make sure to do so now. See the "Getting Started" section at the beginning of the book.

- 1 Start Adobe XD, if it's not already open.
- 2 On macOS, choose File > Open From Your Computer. On Windows, click the menu icon (☰) in the upper-left corner of the application window and choose Open From Your Computer. Open the file named L4\_end.xd, which is in the Lessons > Lesson04 folder that you copied onto your hard disk.

● **Note:** For either macOS or Windows, if the Home screen is showing with no files open, click Your Computer in the Home screen. Open the file named L4\_end.xd, which is in the Lessons > Lesson04 folder that you copied onto your hard disk.

- 3 If the Assets panel opens on the left and you see a Missing Fonts message, close the Assets panel by clicking Assets panel icon (☐) in the lower left.
- 4 Choose View > Zoom To Fit All (macOS) or Zoom To Fit All from the Zoom menu (Windows) in the upper right and leave the file open for reference.



This file shows you what you will create by the end of the lesson.

- 5 Leave the file open for reference, or choose File > Close (macOS) or click the X in the upper-right corner of the open window (Windows) to close the file.

# Graphics and Adobe XD

In Adobe XD, you'll create and work with *vector graphics* (sometimes called vector shapes or vector elements). Vector graphics are made up of lines and curves defined by mathematical objects called *vectors* and can be created in Adobe XD or a program like Adobe Illustrator.

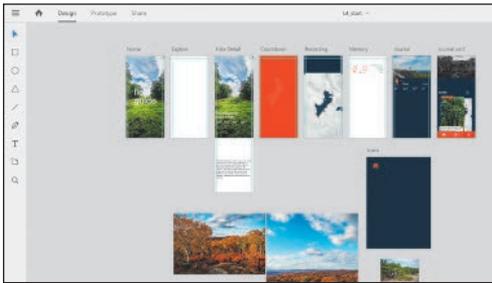
In Lesson 3, “Adding Images, Graphics, and Text” you learned about the different types of images you can import into Adobe XD and how to work with them, including bringing in vector artwork from Illustrator. Using a variety of methods and tools in Adobe XD, you can freely move or modify shapes or paths you import or create. These can be in the form of icons, buttons, and other design elements.

## Creating and editing shapes

Creating vector artwork in Adobe XD is easy thanks to the array of drawing tools available. If you're coming from other Adobe applications, you'll find the drawing tools in Adobe XD to be streamlined and efficient, with a few differences. For more complex vector content, you can use Illustrator and easily bring the vector artwork into XD.

- 1 Choose File > Open From Your Computer (macOS), or click the menu icon (☰) in the upper-left corner of the application window and choose Open From Your Computer (Windows). Open the Travel\_Design.xd document in the Lessons folder (or where you saved it).
- 2 Press Command+0 (macOS) or Ctrl+0 (Windows) to see all of the content.

● **Note:** If you are starting from scratch using the jumpstart method described in the section “Getting Started,” open L4\_start.xd from the Lessons > Lesson04 folder.



- 3 Click the artboard name “Home” in the document window to select that artboard. Press Command+3 (macOS) or Ctrl+3 (Windows) to zoom in.
- 4 Select the Select tool (☛) and click away from the artboards to deselect all.

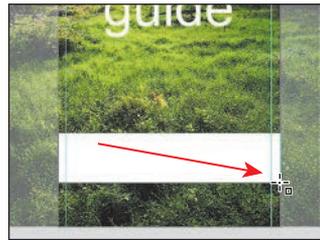
## Creating rectangles

In this section, using the Rectangle tool, you'll create a rectangle that will be used as a button on the home screen.

► **Tip:** When drawing shapes, you can hold down Option (macOS) or Alt (Windows) to draw from the center, or press Shift to constrain the proportions of the shape. In the case of the Rectangle tool, pressing the Shift key constrains the shape to a square as you draw.

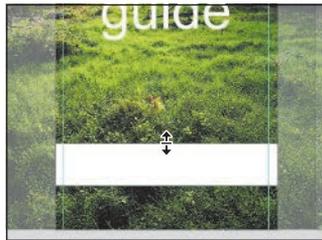
► **Tip:** You can also press the R key to select the Rectangle tool.

- 1 Select the Rectangle tool (□) in the toolbar. Near the bottom of the Home artboard, move the pointer over the left edge of the artboard until that edge of the artboard turns aqua. This change in color indicates that the shape will snap or align to the edge of the artboard. Drag down and to the right to draw a rectangle, stopping on the right edge of the artboard. When alignment guides appear on the right, release the mouse button. Don't worry about the height for now.

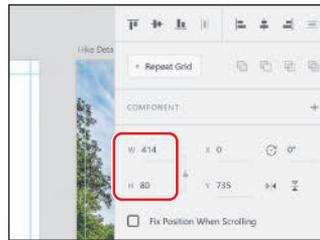


Alignment guides are always on and can be very helpful for aligning, snapping, and spacing content you create or transform.

- 2 With the rectangle selected, drag the top-middle point of the shape up or down until you see a Height value of approximately 80 in the Property Inspector.



Drag to resize the rectangle



The result in the Property Inspector

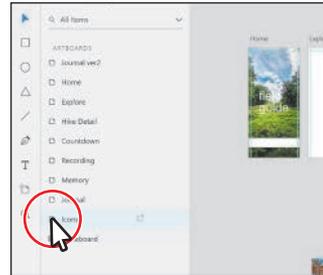
Similar to editing artboards, as you draw or edit shapes the Width and Height values in the Property Inspector change to reflect the current sizing of the selected content.

## Creating ellipses

Another drawing tool you can use is the Ellipse tool. In this section, you'll create several circles that will be used as a button in the app footer.

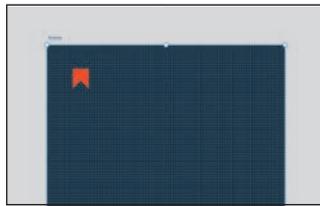
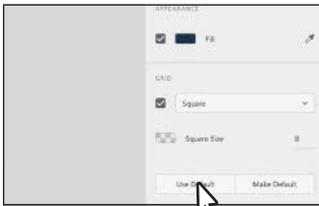
- 1 Press Command+Shift+A (macOS) or Ctrl+Shift+A (Windows) to deselect all so that you will be able to see all of the artboards in the Layers panel.

- 2 Click the Layers panel button (☰) in the lower-left corner (or press Command+Y [macOS] or Ctrl+Y [Windows]) to open the Layers panel, if it isn't already open. Double-click the artboard icon (□) to the left of the artboard name "Icons" in the Layers panel to fit the artboard in the document window.



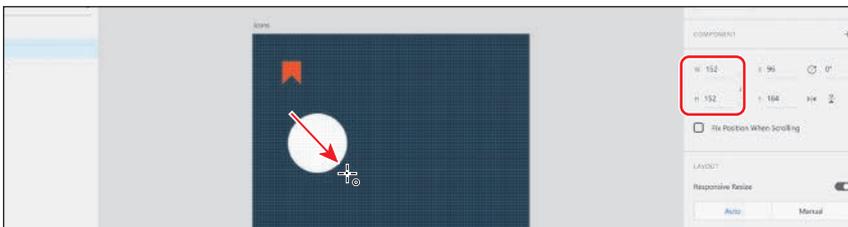
As you make your way through the lessons, you'll see that there are a lot of ways to navigate between artboards. The Layers panel is a method that you learned about in Lesson 1, "An Introduction to Adobe XD."

- 3 Choose Square from the Grid menu in the Property Inspector to turn it on. Click the Use Default button to apply the default square grid you set up previously.



Next you'll create a record button that will be used on the Recording artboard.

- 4 Select the Ellipse tool (○) in the toolbar (or press the E key to select the Ellipse tool). Hold down the Shift key and drag to create a circle on the artboard. As you drag, pay attention to Width and Height in the Property Inspector. When you see a width of 152 and height of 152, release the mouse button and then the key.

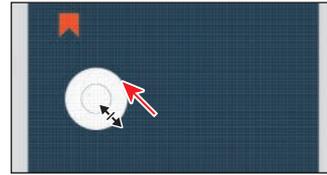


You may notice that as you drag, the Width and Height values are changing by multiples of 8. That's due to the square grid setting of 8.

**Note:** If you started with the L4\_start.xd file, the default grid you see may not be the same. Ensure that Square Size is 8, and click the Square Size color to ensure that the Alpha value in the color picker is 20%.

**Tip:** You can press Command+' (macOS) or Ctrl+' (Windows) to show or hide the square grid for a selected artboard or artboards.

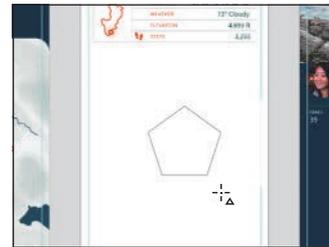
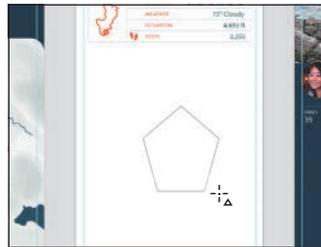
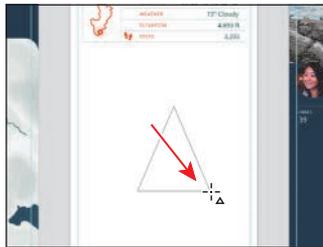
- 5 Right-click the circle and choose Copy. Then right-click and choose Paste to paste a copy directly on top of the original.
- 6 To make the new circle half its size, drag a corner toward the center. As you drag, hold down Option+Shift (macOS) or Alt+Shift (Windows) to resize it from the center and maintain its proportions. Release the mouse button and then the keys.



## Creating polygons

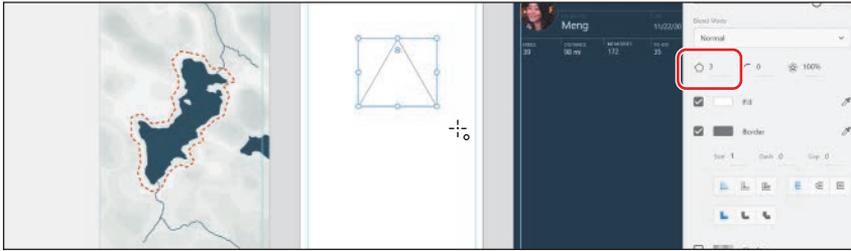
The last type of shape you'll explore is the polygon. Using the Polygon tool, you'll create a triangle shape that will be used on the Memory artboard.

- 1 Press Command+Shift+A (macOS) or Ctrl+Shift+A (Windows) to deselect all so that you can see all of the artboards in the Layers panel.
- 2 In the Layers panel, double-click the artboard icon (□) to the left of the artboard name "Memory" to fit the artboard in the document window.
- 3 To turn off the square grid, deselect the Square option in the Grid section of the Properties panel. This allows you to draw without snapping to the square grid.
- 4 Select the Polygon tool (△) in the toolbar.
- 5 Move the pointer in an empty area of the artboard. By default, the Polygon tool creates a triangle (a three-sided shape), but you'll edit the shape as you draw it. Drag down and to the right to begin drawing a polygon, but *don't release the mouse button yet*. Press the up arrow key twice to increase the number of sides on the polygon to five, and don't release the mouse button yet. Hold down the Shift key to straighten and constrain the shape. Release the mouse button and then the key. Leave the shape selected.



In the Properties panel, you will now see a Corner Count option (◊), the Corner Radius option (⌢), and the Star Ratio (☆). The corner count is used to change the number of sides on the shape after you've created it, and the star ratio is used to turn the polygon into a star shape.

- 6 Change the Corner Count option to 3 and press Return or Enter. Leave the triangle selected.



## Creating stars

To create a star shape using the Polygon tool, start by drawing a polygon on the artboard. Then, click the Star Ratio handle in the upper right corner of the polygon, and drag in towards the radius. You can also adjust the star ratio by clicking the Star Ratio field in the Property Inspector. The ratio can be a value between 1 and 100. Use the Corner Count field to define the number of sides you want to have for the polygon. You can draw a star polygon from a regular triangle and go up to a hundred-sided polygon.

Hold down Shift key while dragging the Star Ratio handle to change it in increments of 10%. Alternatively, place the cursor on the Star Ratio field, and press the up and down arrow keys to control the ratio size.



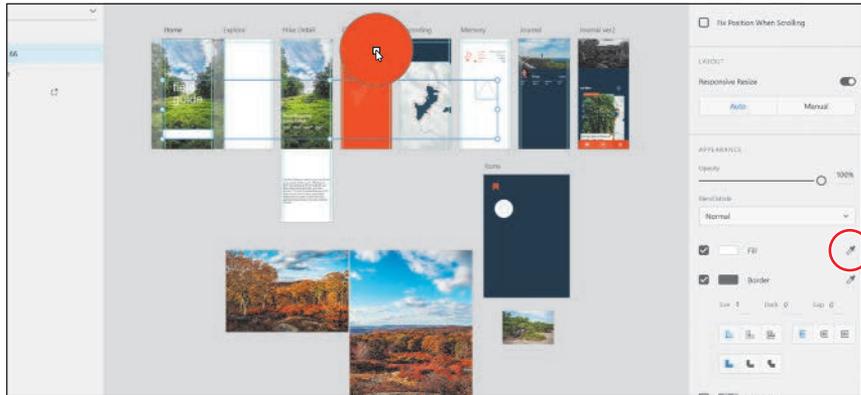
—From XD Help

## Changing fill and border

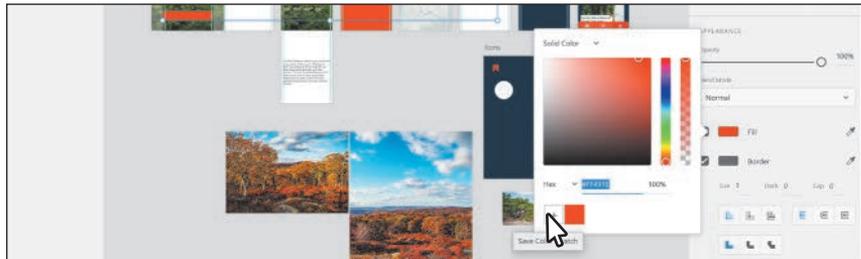
Now that you have a few shapes in your design, you'll start to change appearance properties for them. You'll start by sampling color with the Eyedropper.

- 1 Press Command+0 (macOS) or Ctrl+0 (Windows) to see all of the content.
- 2 Select the Select tool (▸) in the toolbar. Shift-click the rectangle you drew toward the bottom of the Home artboard to select it and the triangle.
- 3 Press the I key to select the fill Eyedropper so you can sample a color and apply it to the fill of selected content. Move the pointer over the orange-red color in the Countdown artboard and click to sample the color.

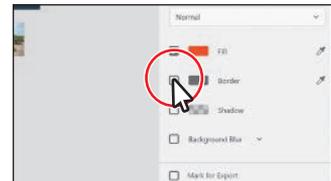
► **Tip:** You can also click the Eyedropper to the right of the Fill box in the Property Inspector (circled in the figure) to be able to sample a color for the fill.



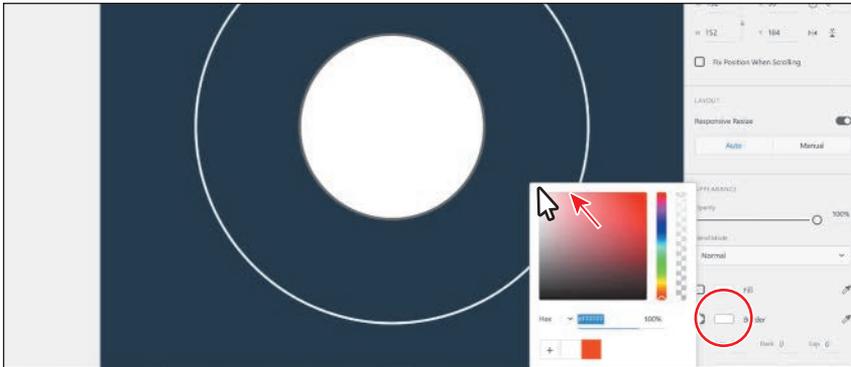
- 4 To save the orange-red color, click the Fill color in the Property Inspector and click the plus (+) at the bottom of the Color Picker. Press the Esc key to hide the panel.



- 5 Deselect the Border option to turn the border off for the selected shapes.
- 6 Click the larger circle you drew on the Icons artboard to select it. Press Command+3 (macOS) or Ctrl+3 (Windows) to zoom in to it.

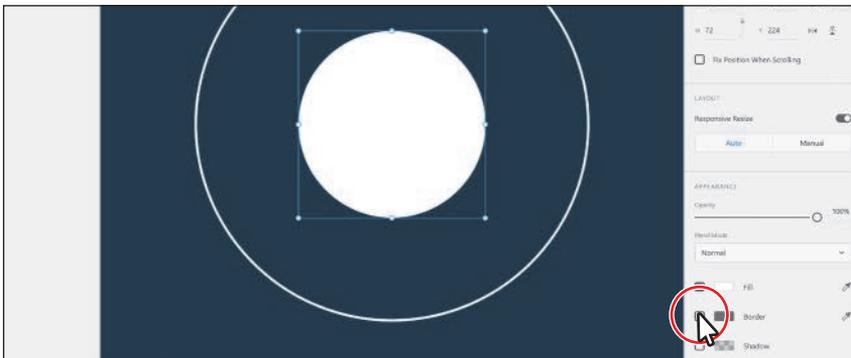


- 7 Deselect the Fill option in the Property Inspector to remove the fill.
- 8 Click the Border color to show the Color Picker. Change the border color to white by dragging in the Saturation/Brightness field.



- 9 Click the plus (+) at the bottom of the color picker to save the white color.  
Fill and border colors you create can be saved in this way. The colors you save using this method appear in the color picker for this document only. You can't give names to these saved colors.
- 10 Click to select the smaller circle and deselect the Border option to turn it off.

► **Tip:** To delete a color swatch, drag the swatch away from the color picker window.

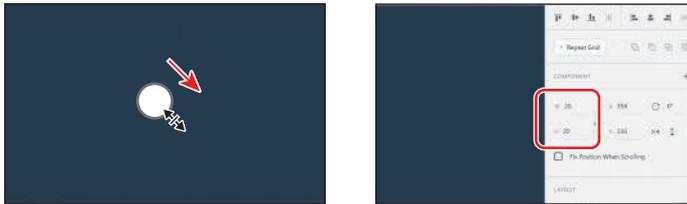


- 11 Drag across both circles to select them, and choose Object > Group (macOS) or right-click and choose Group to keep them together as a group.
- 12 Press Command+S (macOS) or Ctrl+S (Windows) to save the file.

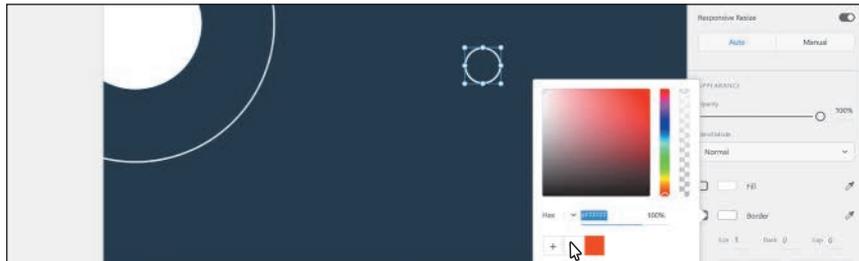
## Working with border options

Now, you'll create a simple magnifying glass search icon from a circle and path. You'll explore border alignment and changing the line cap to get the final look.

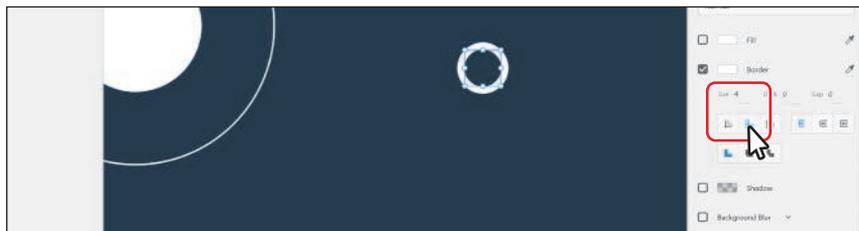
- 1 Press Command and – (macOS) or Ctrl and – (Windows) a few times to zoom out.
- 2 Press the spacebar and drag to the left to see more of the Icons artboard to the right of the circles. You can also drag on a trackpad with two fingers to pan in the document window.
- 3 Select the Ellipse tool (○) in the toolbar. Shift-drag to create a circle on the artboard. As you drag, pay attention to Width and Height in the Property Inspector. When you see an approximate width of 20 and height of 20, release the mouse button and then the key.



- 4 Deselect the Fill option in the Property Inspector to remove the fill.
- 5 Click the Border color to show the Color Picker. Click the white color you saved previously to apply it to the border. Press the Esc key to hide the panel.



- 6 Change Border Size to 4 and press Return or Enter.
- 7 Click the Outer Stroke button (⌋) to align the border to the outside of the shape.



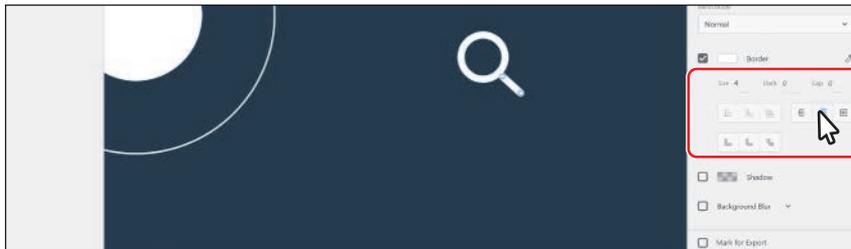
By default, borders are aligned to the inside of paths in Adobe XD. Next you'll draw the handle of the search icon.

8 Press Command+Shift+A (macOS) or Ctrl+Shift+A (Windows) to deselect.

9 Select the Line tool (↗) in the toolbar on the left and Shift-drag to make a small angled line, as you see in the figure. This will be the handle of the magnifying glass.



10 Change the border color to white, change the border size to 4, and press Return or Enter. Click the Round Cap button (⌚) to round the ends of the line.



**Note:** You may want to reposition the handle before you group the objects in the next step.

11 Select the Select tool and drag across both objects and press Command+G (macOS) or Ctrl+G (Windows) to group them.

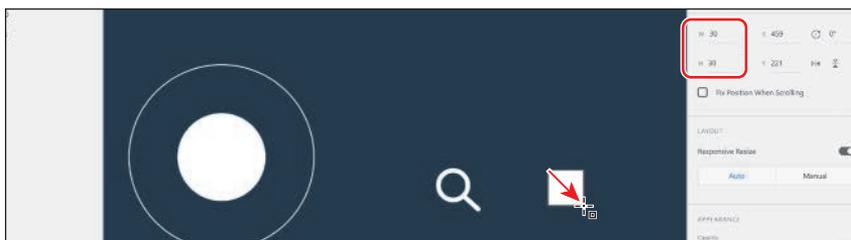
## Rounding corners

When it comes to rectangles, you can easily round all of the corners of a rectangle at once or each individually. In this next section, you'll create a rounded-corner rectangle that will become part of an icon.

1 With the Select tool (☛) selected, zoom out by pressing Command and – (macOS) or Ctrl and – (Windows).

To zoom in or out you can also pinch using a trackpad or Option-scroll/Alt-scroll using a mouse.

2 Select the Rectangle tool (□) in the toolbar and Shift-drag to create a square next to the search icon you just created. Release the mouse button and then the key when it shows an approximate width of 30 and height of 30 in the Property Inspector.



► **Tip:** You can drag any of the corner widgets on the shape away from the center of the shape to remove the corner radius.

- 3 Deselect the Border option in the Property Inspector to remove the border.

For the next step, you may need to zoom in to see the corner radius widgets.

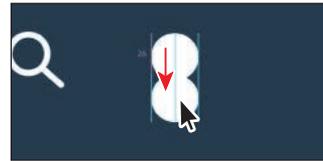
- 4 Drag any one of the corner radius widgets (⦿) toward the center of the shape to round all of the corners at once. Drag as far as you can to make a circle.



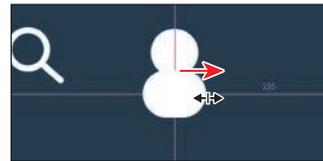
Next, you'll round corners independently on a shape.

- 5 To duplicate the circle, press Command+D (macOS) or Ctrl+D (Windows). A copy is placed on top of the original.

- 6 Press the letter V to select the Select tool and drag the new circle straight down, away from the original, making sure they still overlap a little.



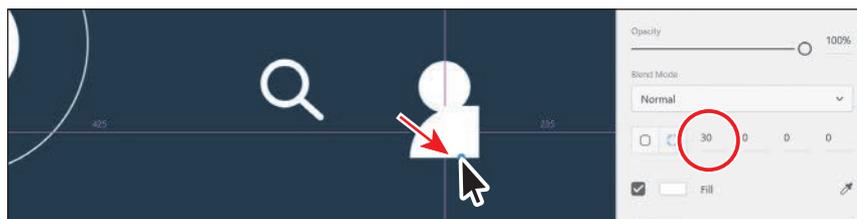
- 7 Option-drag (macOS) or Alt-drag (Windows) the middle point on the right side of the shape to the right to make the shape wider from both sides at the same time.



- 8 Change the Corner Radius value in the Property Inspector to 0 to remove the rounded corners from the copy.

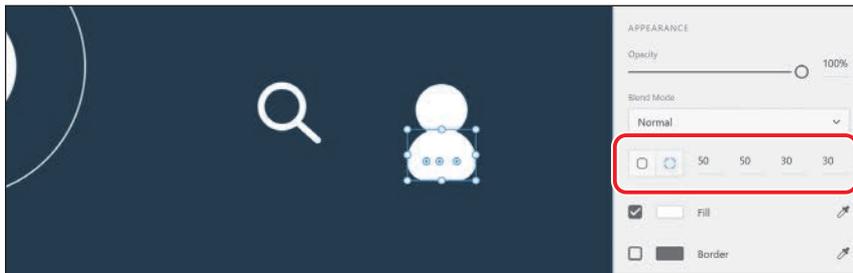


- 9 Option-drag (macOS) or Alt-drag (Windows) the upper-left corner radius widget (⦿) toward the center of the shape. Drag until you see a Top Left Corner Radius value of approximately 30 in the Property Inspector.



Dragging with the Option/Alt key held down allows you to change one of the corner radii. When you change a single corner radius by dragging with the Option/Alt key, the Different Radius For Each Corner option () becomes selected in the Property Inspector, allowing you to change each corner radius independently. If you find that you can't change the radius value to 30—maybe you can only change it to 26, for instance—it may be that the rectangle is smaller than it is in the figure. That's okay.

- 10 Change the Corner Radius values in the Property Inspector to **50, 50, 30, and 30** (or similar values) and press Return or Enter to accept the values. Leave the shape selected.



► **Tip:** If you want to ensure that all of the radius values are the same again, you can click the Same Radius For All Corners button () .

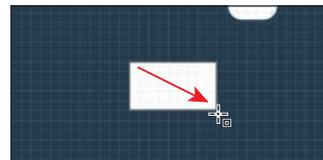
● **Note:** By default, when you transform a shape, the corner radius values do not scale (change).

- 11 With the Select tool selected, drag across both objects and press Command+G (macOS) or Ctrl+G (Windows) to group them.

## Editing shapes

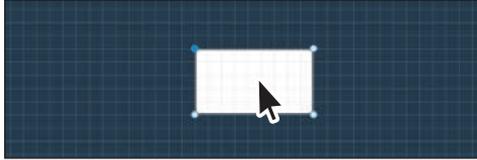
If you've ever edited shapes in other Adobe programs, like Illustrator, you're likely used to switching tools to accomplish shape editing tasks. In Adobe XD, shape editing is easily accomplished with a single tool, the Select tool. In this section, you'll create and edit shapes for a map icon.

- 1 Choose View > Show Square Grid (macOS), or right-click the Icons artboard and choose Show Square Grid (Windows).
- 2 Select the Rectangle tool () in the toolbar and, starting on the square grid, drag to create a rectangle that is wider than it is tall. Make sure to snap the right edge of the rectangle to the square grid. See the figure. The rectangle in the figure has a height of 40 and a width of 72.



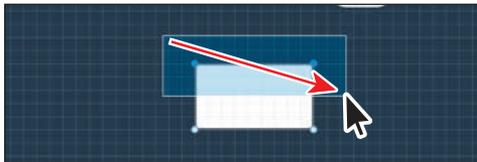
In this case, the square grid can be a useful way to create shapes because it ensures whole-number values for width and height. Every shape you create has a bounding box around it when selected. This is used for transforming the shape in different ways.

- 3 Select the Select tool (☞) and double-click the selected rectangle.

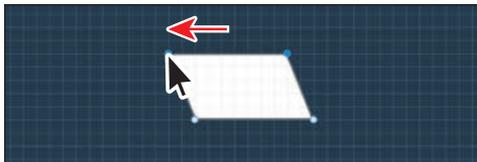


Double-clicking an object enters Path Edit mode, which allows you to edit the anchor points of the object. At this point, you could select existing anchor points and edit or delete them and add new anchor points, but you can't move or transform the entire shape.

- 4 Drag across the top two anchor points to select them both. You could have also pressed the Shift key and clicked both anchor points to select them.

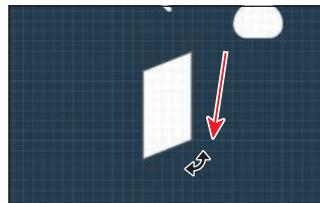
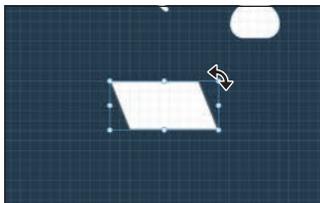


- 5 Drag one of the anchor points to the left, keeping it in line with the original position of the anchor points. Snap the anchor point you are dragging to the square grid.

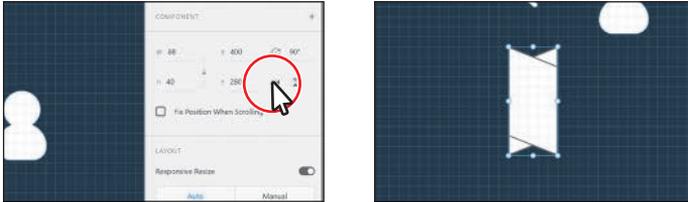


- 6 Press the Esc key to exit Path Edit mode. The bounding box is now showing again, and the anchor points are hidden.

- 7 With the shape still selected, move the pointer just off one of the corners. When the pointer changes (↻), Shift-drag clockwise to rotate the shape. When you see 90 in the Rotation field of the Property Inspector, release the mouse button and then the Shift key.

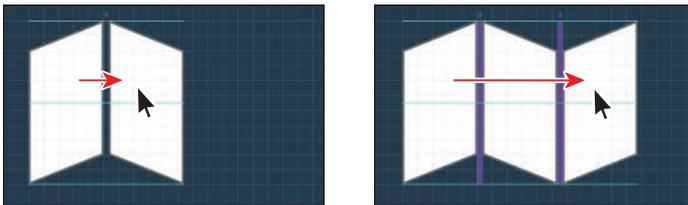


- 8 With the Select tool (⌵) and the shape still selected, press Command+D (macOS) or Ctrl+D (Windows) to paste a copy right on top of the original. Next, you'll flip the shape copy.
- 9 Click the Flip Horizontally button (↔) in the Property Inspector to flip the shape.

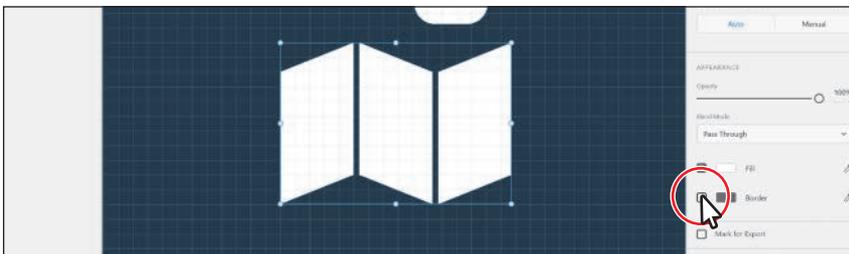


- 10 Drag the shape you just flipped to the right. When there is a gap of 3 pixels between the shapes, stop dragging and release the mouse button. Aqua alignment guides appear, indicating it is still aligned horizontally with the original shape.
- 11 Option-drag (macOS) or Alt-drag (Windows) the shape on the left to the right to make a copy. When it looks like the figure, release the mouse button and then the key.

**Note:** If you find that the shape is snapping to the square grid and the Gap value you see is 8, try zooming in further. By zooming in, the shape will snap to the pixel grid and the square grid.



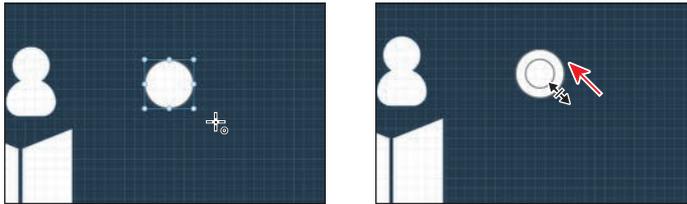
- 12 Drag across all three shapes and press Command+G (macOS) or Ctrl+G (Windows) to group them together and make a map icon.
- 13 Deselect the Border option in the Property Inspector to remove the border.



## Combining shapes

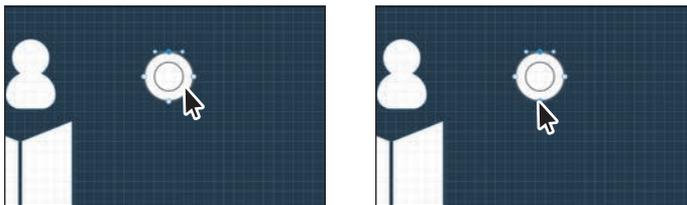
Like many other drawing applications, Adobe XD offers several Boolean operations for combining shapes in different ways. There are four Boolean operations you can choose from: Add, Subtract, Intersect, and Exclude Overlap. Using Boolean operations can be very useful for creating more complex artwork from simpler shapes. To me, the best part of combining shapes using Boolean operations in Adobe XD is the ability to edit each individual shape, even after multiple shapes have been combined. Next, you'll combine shapes to create a map pin icon.

- 1 Zoom out a bit by pressing Command and – (macOS) or Ctrl and – (Windows) a few times.
- 2 Select the Ellipse tool (○) in the toolbar. In a blank area of the artboard, Shift-drag to create a circle. Don't worry about the size for now. Just make it large enough to work with. Release the mouse button and then the key.
- 3 With the Select tool (▶) and the shape still selected, press Command+D (macOS) or Ctrl+D (Windows) to paste a copy right on top of the original.
- 4 Option+Shift-drag (macOS) or Alt+Shift-drag (Windows) a corner to make the circle smaller.



● **Note:** You may need to deselect the smaller circle first, before attempting to select the larger circle.

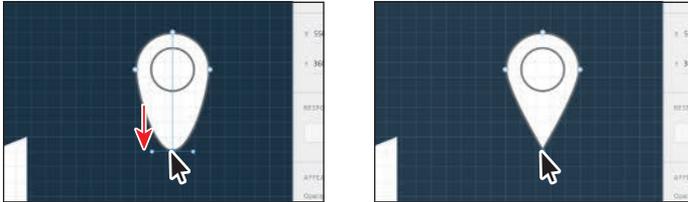
- 5 Click the larger circle to select it. Double-click the shape to enter Path Edit mode and see the anchor points. See the first part of the following figure.
- 6 Click the anchor point on the bottom of the circle to select it. You should see little direction handles appear on either side of the point. These control the curve of the path on either side of the anchor point.



For the next step, if you don't see the aqua alignment guide, you may need to zoom in.

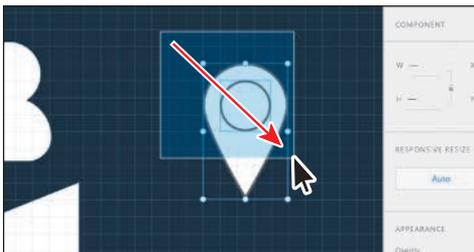
- 7 Drag the bottom anchor point down to reshape the circle. As you drag, a vertical aqua alignment guide should appear when the point is aligned with the anchor point at the top of the shape. Drag down until it looks good to you.
- 8 Double-click the same point to convert it to a corner point (not a curve).

► **Tip:** You can double-click the same point again to convert it back to a corner point.



In Adobe XD, you can easily edit existing shapes without having to switch tools from the Select tool. Later in this lesson, in the section “Drawing with the Pen tool,” you’ll learn about creating and editing paths with the Pen tool and the Select tool.

- 9 Press the Esc key to exit Path Edit mode. You should see the bounding box around the shape, not the anchor points on the shape. Drag across both shapes to select them.



- 10 Click the Subtract button (⊖) in the Property Inspector to subtract the smaller circle from the shape under it.



Look in the Property Inspector and notice that the Subtract option is on. The Boolean operations, such as Subtract, can be toggled off later, returning the shapes to two separate shapes.

- 11 Deselect the Border option in the Property Inspector to remove the border.

► **Tip:** In Lesson 6, “Working with Assets and CC Libraries,” you’ll learn about saving colors and working smarter.

- 12 Click the Fill color box in the Property Inspector to show the Color Picker. Select the orange-red color you saved, at the bottom of the panel, to apply it.

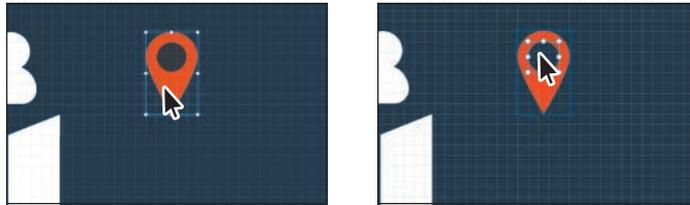


- 13 Press the Esc key to hide the color picker.

## Editing combined shapes

No matter which of the operations you use for combining shapes, you can always edit the underlying shapes you started with. Next, you’ll edit shapes from the map pin icon you just created.

- 1 Double-click the newly combined pin icon to enter editing mode for the selected shapes.
- 2 Click in the smaller circle in the center to select it, if it’s not already selected.



Notice the blue outline around the entire pin icon. When you double-click combined shapes, the outline appears, indicating the combined shapes that you are editing. You can see the outline in the following figure.

- 3 Zoom in to the pin icon.
- 4 Option+Shift-drag (macOS) or Alt+Shift-drag (Windows) a corner to make the circle even smaller. Release the mouse button and then the keys.
- 5 Press the Esc key to stop editing the individual shapes, and select the entire combined pin icon.



- 6 Choose Object > Path > Convert To Path (macOS) or, on Windows, right-click and choose Path > Convert To Path.

The Convert To Path command is useful if you want to make the path combination permanent (you can no longer edit the individual paths) and also to be able to edit the anchor points of the combined path.

- 7 Press Command+S (macOS) or Ctrl+S (Windows) to save the file.

## Creating dashed lines

In addition to changing the color and size of a border for content, you can also apply a dash. With a path or shape selected, in the Property Inspector you can assign specific quantities to the Dash and Gap values. The Dash value is the length of each dash segment on the line, and the Gap value is the distance between those dash segments.



## Aligning content to the pixel grid

When you're creating vector content in Adobe XD or bringing in vector content from other sources, it's important that the images you export later look sharp. To create pixel-accurate designs, you can align artwork to the pixel grid using the Align To Pixel Grid option. The *pixel grid* is an invisible grid of 72 squares per inch. Align To Pixel Grid is an object-level property that enables an object to have its vertical and horizontal paths aligned to the pixel grid. Next you'll draw an arrow icon and align it to the pixel grid.

- 1 Choose View > Hide Square Grid (macOS) or, on Windows, right-click the artboard and choose Hide Square Grid.

With the square grid off, content you create will no longer be aligned to the grid.

- 2 Press the spacebar and drag to the left to see more of the Icons artboard to the right of the other icons. You can also drag on a trackpad with two fingers to pan in the document window.

**Note:** If you find that this zoom command won't work, you can pinch-zoom on a trackpad or select the Zoom tool to zoom in.

- 3 Select the Line tool (↘) in the toolbar and Shift-drag to make a horizontal line, as you see in the figure. Release the mouse button and then the key.

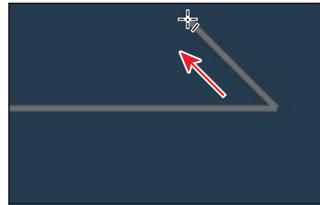
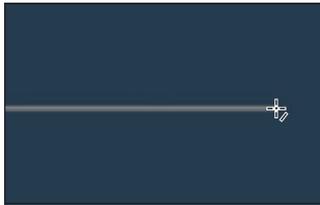


- 4 Press Command+3 (macOS) or Ctrl+3 (Windows) to zoom in to the line.

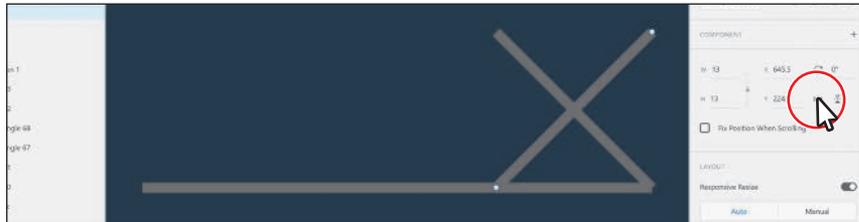
- 5 To deselect the line, press the Esc key.

Now you'll draw the arrowhead.

- 6 With the Line tool selected, starting on the right end of the path you drew, Shift-drag up and to the left to make a line that is angled at 45 degrees.



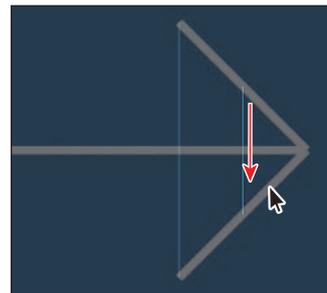
- 7 Press Command+D (macOS) or Ctrl+D (Windows) to duplicate the line in place. Click the Flip Horizontally button (↔) in the Property Inspector.

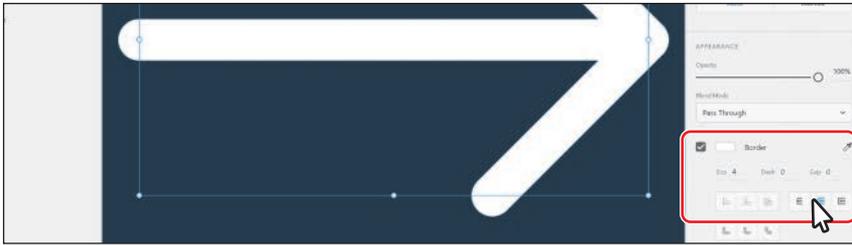


- 8 Select the Select tool and drag the flipped line straight down. Aqua alignment guides will appear to help you align it.

- 9 Drag across all of the paths and then right-click them and choose Group.

- 10 In the Property Inspector, change the border color to white, change the border size to 4, and press Return or Enter. Click the Round Cap button (⦶) to round the ends of the line.





- 11 Shift-drag a corner to make it smaller. Drag until you see a width of around 24 in the Property Inspector. Release the mouse button and then the key.

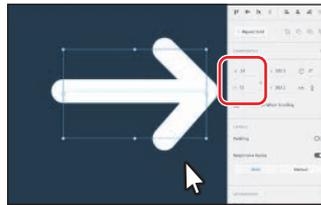
Looking in the Property Inspector, you may see that the Width and Height values are not whole numbers. Next, you'll align the artwork in the group to the pixel grid, and those values will become whole numbers.

- 12 Choose Object > Align To Pixel Grid (macOS) or right-click the selected artwork and choose Align to Pixel Grid.

**Note:** To see the change to the Height and Width values in the Property Inspector, you may want to click away from the arrow artwork, then click to select it again.

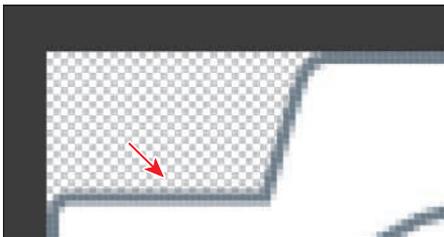


Not pixel-grid aligned

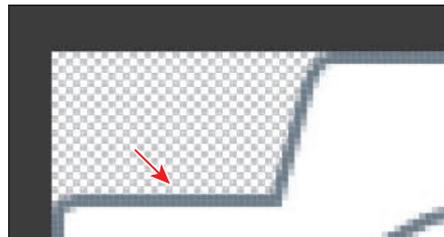


After aligning to the pixel grid

You probably noticed the subtle shift in the shapes as the paths were aligned to the pixel grid. To give you an idea of what just happened, take a look at the following figure. On the left is artwork that I didn't align to the pixel grid before I exported it as a PNG; on the right is artwork that is aligned to the pixel grid.



Not aligned before exporting as PNG



Aligned before exporting as PNG

You can clearly see the difference on the horizontal and vertical paths.

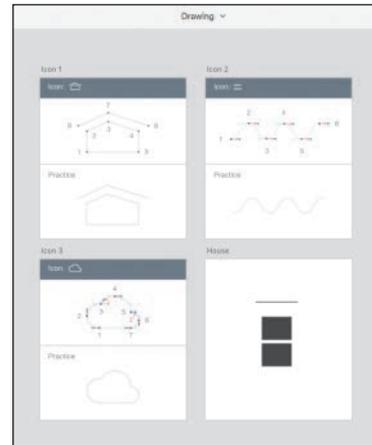
- 13 Press Command+0 (macOS) or Ctrl+0 (Windows) to see all of the artboards.
- 14 Click in a blank area of the gray pasteboard to deselect all.
- 15 Press Command+S (macOS) or Ctrl+S (Windows) to save the file.

# Drawing with the Pen tool

Another way to create artwork is to use the Pen tool in Adobe XD. With the Pen tool, you can create freeform and more precise artwork, and edit existing shapes. In this section, you'll explore the Pen tool by drawing artwork using straight and curved lines, and then you'll learn how to edit shapes with both the Pen and Select tools. First, you'll open an existing file and begin drawing some icons using the Pen tool.

- 1 Choose File > Open From Your Computer (macOS), or click the menu icon (☰) in the upper-left corner of the application window and choose Open From Your Computer (Windows). Locate the file named Drawing.xd, which is in the Lessons > Lesson04 folder that you copied onto your hard disk. Select the file and click Open.

This document has three icons you'll create. You'll use templates provided for tracing paths, and then you can practice on your own.



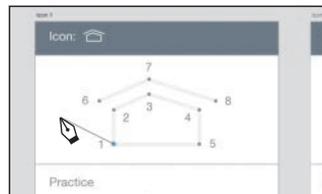
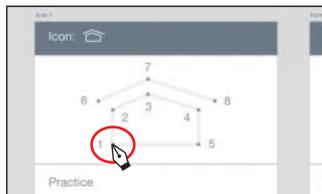
- 2 In the Layers panel, double-click the artboard icon (□) to the left of the artboard name "Icon 1" to fit the artboard in the document window.

## Drawing straight lines

You may have some experience with the Pen tool in an application like Illustrator or Photoshop. The Pen tool in Adobe XD is similar, but in XD creating paths with the Pen tool may seem easier and more intuitive. To start drawing with the Pen tool in Adobe XD, you'll create an icon in the shape of a house.

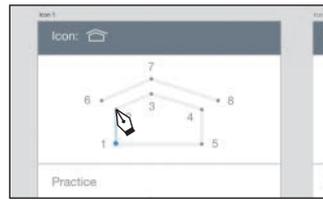
► **Tip:** You can press the P key to select the Pen tool.

- 1 Select the Pen tool (🖋) in the toolbar. Move the pointer over point 1 and click to create an anchor point; then release the mouse button. Make sure you have released the mouse button and move the pointer away from the point you just created, and you'll see a line connecting the first point and the pointer, no matter where you move the pointer. That line gives you a preview of the next line segment you will draw.



Later, as you create curved paths, it will make drawing them easier because you can preview what the path will look like.

- 2 Move the pointer over point 2, above point 1. When the pointer is vertically aligned with the first point, the preview line will turn aqua to show that it's aligned. Click point 2 to create another anchor point.



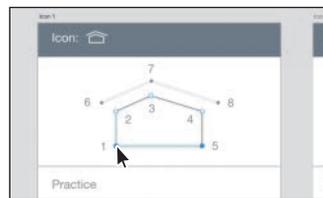
● **Note:** If the path looks curved, you have accidentally dragged with the Pen tool. Press Command+Z (macOS) or Ctrl+Z (Windows) to undo, and then click again without dragging.

You just created a path. A simple path is composed of two anchor points and a line segment connecting those anchor points. You use the anchor points to control the direction, length, and curve of the line segment.

- 3 Continue clicking points 3, 4, and 5 to create a house shape, releasing the mouse button every time you click to create another anchor point.

The aqua snap guides are very useful for aligning anchor points you create to existing anchor points. Notice that only the last anchor point is filled (not hollow like the rest of the anchor points), indicating that it is selected.

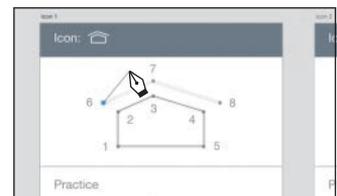
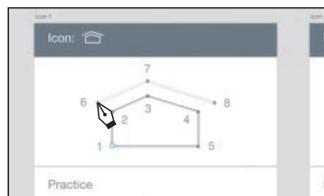
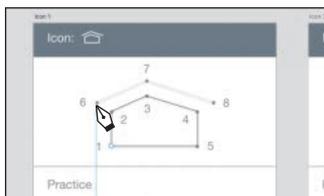
- 4 Click the first anchor point you created to close the path and stop drawing.



After closing a path, the Select tool (▸) is automatically selected. Next, you'll create a path that will be the roof of the house. This will be an open path, not closed.

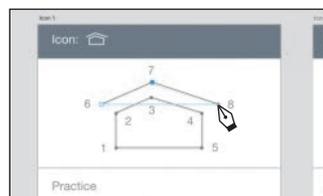
- 5 Select the Pen tool and move the pointer over point 6. Move the pointer around and you most likely will see aqua snap guides. Press and hold Command (macOS) or Ctrl (Windows) and move the pointer around. You will no longer see the aqua alignment guides since dragging with the Command (macOS) or Ctrl (Windows) key down temporarily disables the alignment guides. With the key still held down, click point 6.

▶ **Tip:** Instead of relying on alignment guides to align points as you create them, you can also press the Shift key and click to create an anchor point. The Shift key constrains the angle of the segment to a multiple of 45 degrees.



- 6 With the key held down, click to add a point at 7. Release the key and click point 8 to create a roof.

Releasing the Command (macOS) or Ctrl (Windows) key before adding point 8 allowed the alignment guides to work again.

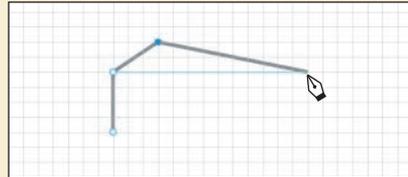


- 7 Press the Esc key to stop drawing the path, which also automatically switches to the Select tool.

If you want to practice without the template, try tracing the same shape below the template in the area labeled Practice.

## Drawing with a square artboard grid turned on

Drawing on an artboard with the grid turned on means that what you draw will snap to the grid lines. This can make creating icons or other vector objects easier and more precise. To avoid snapping to the grid, you can press the Command (macOS) or Ctrl (Windows) key while dragging the mouse and drawing an object.



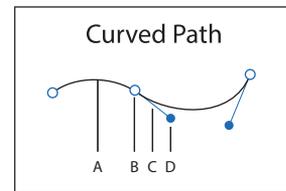
## Drawing curves

Along with creating straight paths with the Pen tool, you can also draw curves. As you draw, you create a line called a *path*. A path is made up of one or more straight or curved segments. The beginning and end of each segment are marked by anchor points, which work like pins holding a wire in place.

A path can be closed (for example, a circle) or open, with distinct endpoints (for example, a wavy line). You change the shape of a path by dragging its anchor points or the direction points at the end of direction lines (together, direction points and direction lines are called *direction handles*) that appear at anchor points.

Creating curves with the Pen tool can be tricky, but with some practice you'll soon be on your way. Next, you'll create a curved path. To do this, you'll drag away from a point you create.

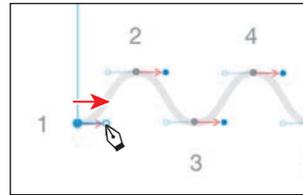
- 1 Press Command+Shift+A (macOS) or Ctrl+Shift+A (Windows) to deselect all.
- 2 Double-click the artboard icon (□) to the left of the artboard name "Icon 2" in the Layers panel to fit the artboard in the document window.



- A. Line segment
- B. Anchor point
- C. Direction line
- D. Direction point

► **Tip:** You can press the spacebar to access the Hand tool and then drag in the document window to move to a blank area of the artboard.

- 3** Select the Pen tool () in the toolbar. Move the pointer over the gray point labeled 1. Press and drag to the right, to the blue dot, to create a direction line.

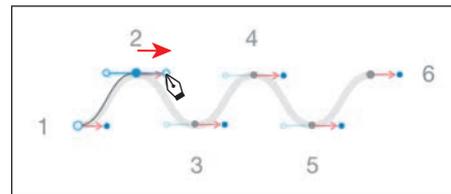
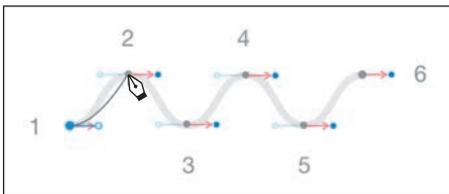


The angle and length of direction lines

determine the shape and size of the curve. As

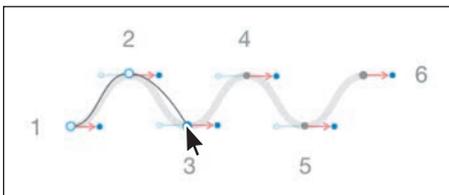
you drag away from a point, there are typically two direction handles (except for on a starting point), one before the point and one after it. Direction lines move together by default and only show when you're editing paths.

- 4** Move the pointer over point 2; then press and drag to the right. *After you begin dragging*, press the Shift key to constrain the movement to a multiple of 15 degrees. When you reach the blue dot, release the mouse button and then the key to create direction lines.

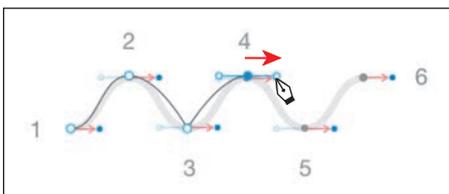


Next, you'll create a corner point with no direction lines, and then go back and change it to a smooth point.

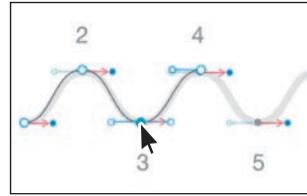
- 5** Move the pointer over point 3. Click and release without dragging to create a corner point with no direction lines.



- 6** Move the pointer over point 4, and press and drag to the right. After you start dragging, press the Shift key. When you reach the blue dot, release the mouse button and then the key to create a direction line.

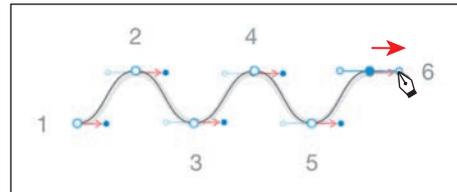
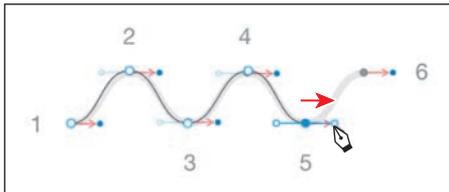


- 7 Move the pointer over the anchor point at 3. When the point turns blue and the pointer changes () double-click to convert the point to a smooth point with direction handles you can edit.



While drawing with the Pen tool in Adobe XD, you can always edit the path you are currently drawing without switching tools.

- 8 Move the mouse pointer over point 5 and drag to the right. As you drag, press the Shift key. When you reach the blue dot, release the mouse button and then the key to create a direction line.
- 9 Move the mouse pointer over point 6 and drag to the right. As you drag, press the Shift key. When you reach the blue dot, release the mouse button and then the key to create a direction line.



- 10 Press the Esc key to stop drawing and automatically switch to the Select tool.
- 11 Change Border Size to 3 in the Property Inspector. Press Return or Enter.
- 12 With the Select tool selected, click in a blank area of the gray pasteboard to deselect the last path.

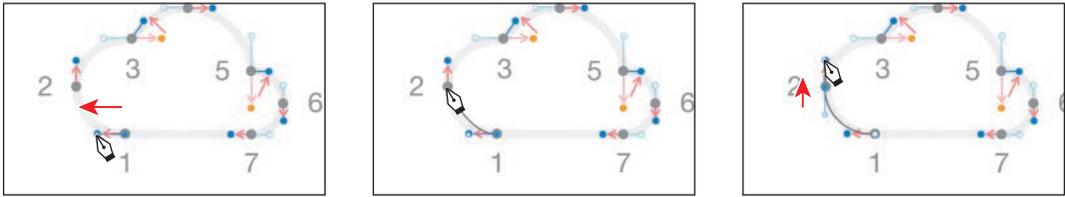
If you want to practice without the template, try tracing the same shape below the template in the area labeled Practice.

## Changing path direction

The last icon you will create is a cloud. The path will contain an anchor point whose direction lines are “split.” This means that a curve can be followed by a straight path, for instance.

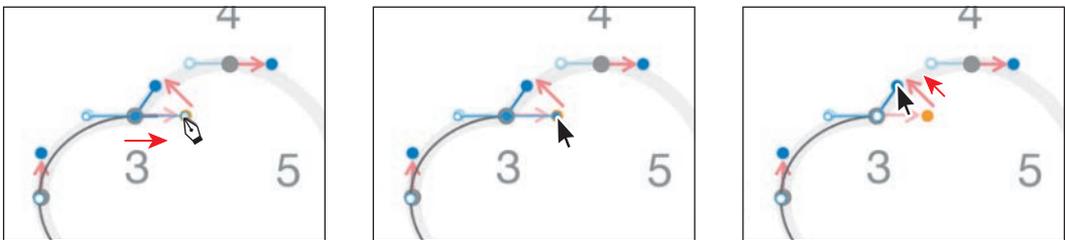
- 1 Double-click the artboard icon () to the left of the artboard named Icon 3 in the Layers panel to fit the artboard in the document window. To zoom in a bit further, press Command and + (macOS) or Ctrl and + (Windows).
- 2 Select the Pen tool () in the toolbar. Press and drag from point 1 to the left, to the blue dot, to create a direction line. Release the mouse button.

- 3 Move the mouse pointer over point 2 and drag up to the blue dot to create a direction line.



Now you need the next part of the path to switch directions at the anchor point and create another curve. You will *split* the direction lines to convert a smooth point to a corner point. This involves a keyboard modifier.

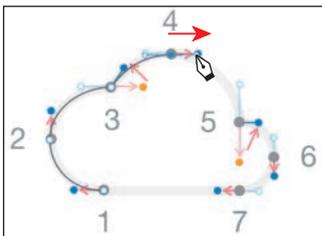
- 4 Move the pointer over point 3 and drag to the gold dot to create a direction line. Release the mouse button.
- 5 Press the Option (macOS) or Alt (Windows) key and drag the end of the direction line to the blue dot. Release the mouse button and then the key.



The direction lines are now split, which means you can move them independently of each other. The trailing direction line controls the curve of the path *leading up to* the anchor point, and the leading direction line controls the curve of the path *after* the anchor point.

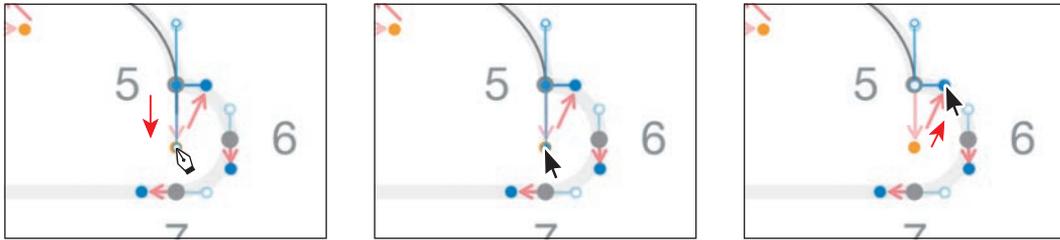
► **Tip:** To make the handles move together again, you can double-click the corner anchor point twice.

- 6 Move the mouse pointer over point 4 and drag to the right, to the blue dot, to continue drawing the path.

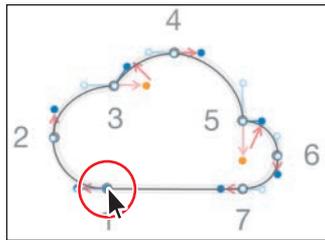


When it comes to smooth points (curved), you'll find that you spend a lot of time focusing on the path segment that is created when you place a new anchor point. Remember, by default there are two direction lines for a point. The previous direction line controls the shape of the previous segment.

- 7 Move the pointer over point 5 and drag to the gold dot to create a direction line. When the path between points 4 and 5 looks good, release the mouse button.
- 8 Press the Option (macOS) or Alt (Windows) key and drag the end of the direction line to the blue dot. Release the mouse button and then the key.

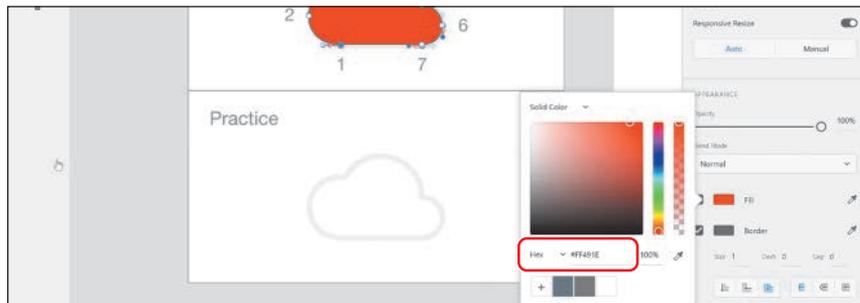


- 9 Move the mouse pointer over point 6 and drag down, to the blue dot, to continue drawing the path.
- 10 Move the mouse pointer over point 7 and drag to the left, to the blue dot, to continue drawing the path.
- 11 Move the mouse pointer over point 1 and click to close the cloud path.



If you want to practice without the template, try tracing the same shape below the template in the area labeled Practice.

- 12 Deselect the Border option in the Property Inspector.
- 13 Click the Fill color, and in the color picker change the Hex value to an orange-red (#FF491E). You may need to make sure that Hex is chosen from the menu in the lower left corner of the color picker first.

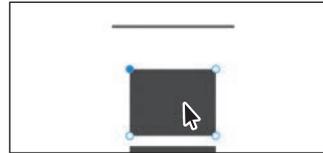


► **Tip:** When editing the Hex value, you can enter Hex values using shorthand. You can type any Hex value to have it repeated for all six values. For instance, typing a single character, such as “f,” and pressing Return or Enter repeats that character for all values (#ffffff). Typing two characters, such as “ab,” repeats in order (#ababab). Typing three characters, such as “123,” repeats each character in order (#112233).

## Editing artwork with the Pen tool

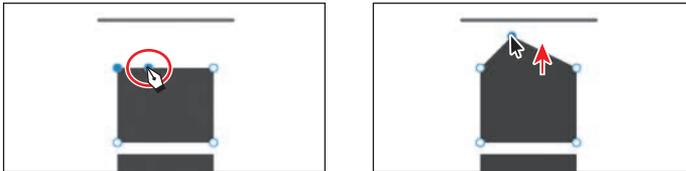
In Adobe XD, you can edit shapes and paths as you are drawing vector artwork or after the artwork is created. In the next few exercises, you'll focus on editing shapes using Path Edit mode.

- 1 Press Command+Shift+A (macOS) or Ctrl+Shift+A (Windows) to deselect all.
- 2 Double-click the artboard icon (📄) to the left of the House artboard in the Layers panel to fit the artboard in the document window.
- 3 With the Select tool (👉) selected, double-click the top rectangle shape to enter Path Edit mode.
- 4 Move the pointer over the top border of the path, as you see in the first part of the following figure. When the Pen tool icon (👉) appears, click to create a new anchor point and release the mouse button.



When in Path Editing mode, you don't have to switch tools from the Select tool to add, delete, and edit points.

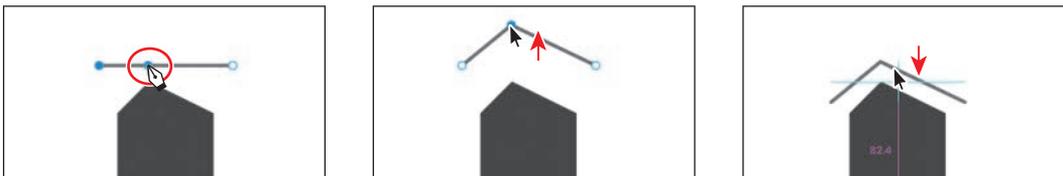
- 5 Drag the anchor point up.



- 6 Double-click the line above the house shape to enter Path Editing mode. Move the pointer over the path, and when you see the Pen tool icon, click to add a new anchor point. See the first part of the following figure.
- 7 Drag that same anchor point up a bit. See the second part of the following figure.
- 8 Press the Esc key to exit Path Edit mode.

At this point, the anchor points aren't visible, and you cannot edit them; only the bounding box of the shape is visible.

- 9 Drag the path down, above the house icon. See the last part of the following figure.

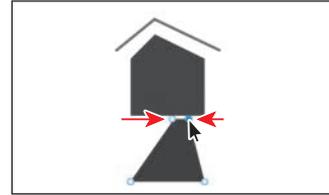


To finish the house artwork, you'll edit the rectangle below the path to look like a curving sidewalk.

**Note:** The figure also shows the anchor points closer to the house icon above.

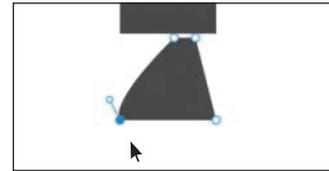
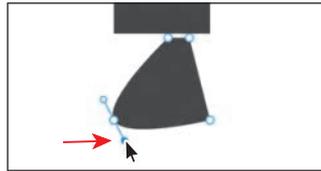
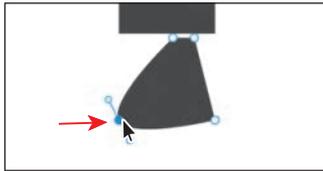
**10** Double-click the rectangle below the house shape to enter Path Editing mode.

**11** Drag the top two anchor points on the selected shapes closer together.

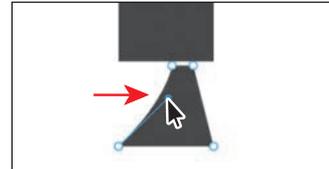


**12** Move the pointer over the lower-left anchor point and double-click to convert it to a smooth point. The path at that anchor should now be a curve.

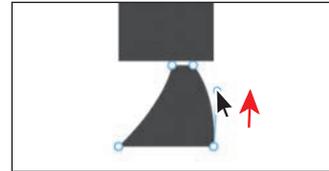
**13** Click the end of the direction handle pointing down. Press Delete or Backspace to remove it. The path on that side of the anchor point is now straight.



**14** Drag the remaining direction handle up and to the right to curve the path.



**15** Repeat steps 12–14 on the anchor point in the lower-right corner of the same shape.



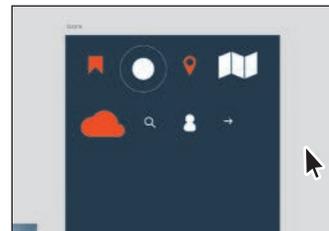
## Copying the cloud icon

Next, you'll copy the cloud icon you created to the `Travel_Design.xd` document.

- 1** Press `Command+0` (macOS) or `Ctrl+0` (Windows) to zoom out.
- 2** With the Select tool selected, right-click the cloud icon and choose Copy.
- 3** To close and save the Drawing document, choose `File > Close` (macOS) or click the X in the upper-right corner (Windows).

You should be back in the `Travel_Design.xd` document.

- 4** Right-click the Icons artboard and choose Paste to paste the cloud icon.
- 5** Drag the icons around on the artboard so they are more evenly spaced. That will make it a little easier to select them later. You may want to zoom in to the artboard.
- 6** Press `Command+0` (macOS) or `Ctrl+0` (Windows) to see everything, if necessary.



# Working with UI Kits

In Adobe XD you have access to a series of UI (user interface) kits for Apple iOS, Microsoft Windows, Google Material (Android), and wireframes. UI kits and wireframes can save time when you're designing for different device interfaces and platforms. They are XD files that include common design elements such as icons, keyboard layouts, navigation bars, inputs, buttons, and more. You can use a UI kit as a starting point or copy and paste elements into your own design. These resources can help you create a design that matches a specific design language (like iOS).

## Downloading the UI kit

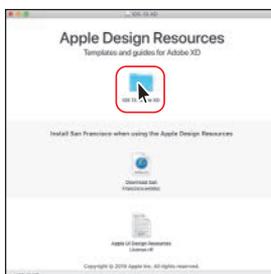
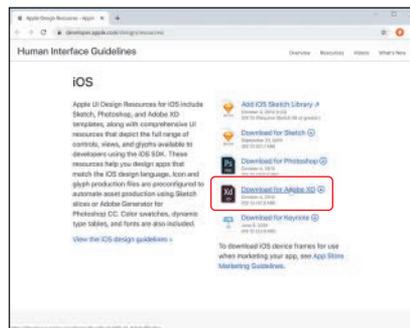
In this section, you'll download and unzip a UI kit from the [developer.apple.com](https://developer.apple.com) website. You'll then open an XD file from the downloaded files and copy a few elements into your design.

- 1 Choose File > Get UI Kits > Apple iOS (macOS) or, on Windows, click the menu icon (☰) in the upper-left corner of the application window and choose Get UI Kits > Apple iOS.

The UI kits listed in the menu you see are links to the websites that they can be downloaded from. By choosing Apple iOS, the [developer.apple.com](https://developer.apple.com) website is opened in your default browser to a page ([developer.apple.com/design/resources/](https://developer.apple.com/design/resources/)) where you can download a UI kit specifically for Adobe XD.

- 2 On the web page that opens in your default browser, click Download For Adobe XD. A DMG file is downloaded to your computer.
- 3 Find the DMG file that was downloaded and double-click it. After you accept an agreement, you can view the contents in a window. Double-click the iOS 13 Adobe XD folder to view its contents.

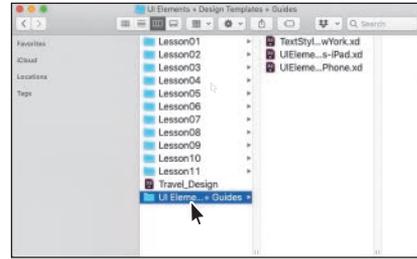
● **Note:** If you are on Windows or cannot access the Adobe XD file on the Apple website, you can open the `UI_kit_content.xd` document in XD, located in the Lessons > Lesson04 folder. You can then press Command+A (macOS) or Ctrl+A (Windows) to select all of the content in the document, copy it, and paste it into the `Travel_Design.xd` file that is still open.



● **Note:** If you've already closed the window, you can open [developer.apple.com/fonts/](https://developer.apple.com/fonts/) in your browser.

4 Save the UI Elements + Design Templates + Guides folder to the Lessons folder on your hard drive so you can easily find the contents.

5 On macOS, in the same window that you double-clicked the iOS 13 Adobe XD folder, double-click the file “Download San Francisco.webloc” to go to a web page in your browser. On that page, click the button to download the SF Pro fonts.



● **Note:** If you are on Windows or you don't install the San Francisco fonts, you may still proceed. You will most likely continue to see a missing fonts warning every time you open a file that uses the content from these UI kits.

6 After the DMG for the fonts is downloaded, locate it and double-click it to view the contents. Follow the installation instructions to install the fonts.



## Opening and copying from the UI Kit

With the UI kit downloaded and the San Francisco Pro fonts installed (macOS only), now you'll open one of the downloaded files and copy content into your Travel\_Design.xd document.

● **Note:** Once again, if you are on Windows or cannot access the Adobe XD file on the Apple website, you can open the UI\_kit\_content.xd document in XD, located in the Lessons > Lesson04 folder. Press Command+A (macOS) or Ctrl+A (Windows) to select all of the content in the document, copy it, and paste it into the Travel\_Design.xd file that is still open.

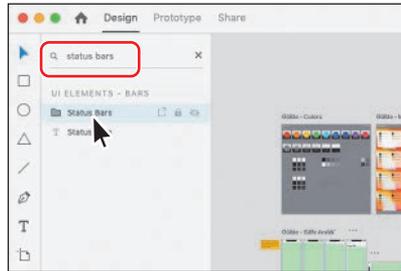
1 Back in Adobe XD, on macOS, choose File > Open From Your Computer (macOS). Navigate to the Lessons > UI Elements + Design Templates + Guides folder. Open the UIElements+DesignTemplates+Guides-iPhone.xd file in that folder.

On Windows, click the menu icon (☰) in the upper-left corner of the application window and choose Open From Your Computer (Windows). Open the UI\_kit\_content.xd document in XD, located in the Lessons > Lesson04 folder. Press Command+A (macOS) or Ctrl+A (Windows) to select all of the content in the document, copy it, and paste it into the Memory artboard of the Travel\_Design.xd file that is still open.

2 Press Command+0 (macOS) or Ctrl+0 (Windows) to see all of the content.

The content in the UI kit is very well organized, and content is grouped together to make selections easier. You will find, however, that it can be challenging to select individual objects since there are a lot of groups nested within groups.

- 3 With the UIElements+DesignTemplates+Guides-iPhone.xd document open (macOS), in the Layers panel (Command+Y [macOS]), type **status bars** into the search field (🔍) at the top of the Layers panel to filter the list of content that appears in the panel (circled in the figure). Click the name “Status Bars” (with the folder icon to the left) to select that content in the document.



- 4 Press Command+3 (macOS) or Ctrl+3 (Windows) to zoom in to the status bars.

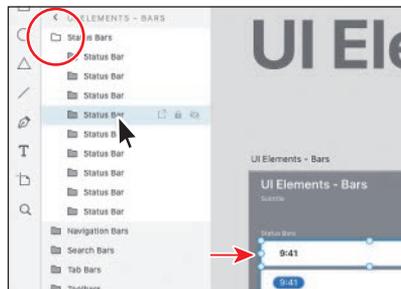
- 5 Click the X to the right of the search field (🔍) (circled in the figure) at the top of the Layers panel to clear the filtering. You should now see all of the content for the UI ELEMENTS - BARS artboard listed in the Layers panel.



- 6 Click the folder icon (📁) (circled in the following figure) to the left of the Status Bars object in the Layers panel to see the contents of the group.

You need to select and copy a dark version of the status bar and a light version.

- 7 Click the “Status Bar” name to the right of each folder icon until you see the top, black text status bar selected (see the figure).
- 8 Click the folder icon for the selected Status Bar to show the content (circled in the following figure).



- 9 Click the name “Status Bar” to the left of the remaining folder icons until you see the top, white text status bar selected (see the figure).

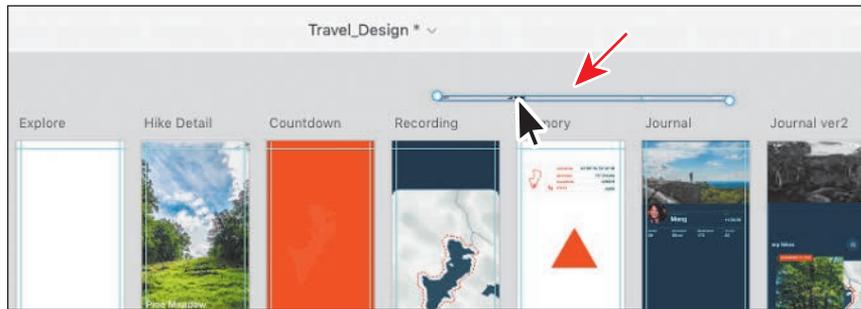


- 10 Click the folder icon for the selected status bar to show the content.
- 11 Press the Command key (macOS) or Ctrl key (Windows), and in the Layers panel, click the black status bar and then click the white status bar to select both (see the figure for which to select). Right-click either of them and choose Copy to copy them.



● **Note:** If you started with the L4\_start.xd jumpstart file, then return to that file.

- 12 Choose File > Close (macOS) to close the file and return to the Travel\_Design.xd document.
- 13 Back in the Travel\_Design.xd document, press Command+V (macOS) or Ctrl+V (Windows) to paste the status bars in the center of the document window. Drag the pasted content above the Memory artboard for now.



When you drag the pasted content, you may wind up deselecting it instead. In Adobe XD, you cannot just drag from within the bounds of the group; you need to drag from the content in the group. You may want to zoom in to make it easier to drag.

- 14 Press Command+S (macOS) or Ctrl+S (Windows) to save the file. If you plan on jumping to the next lesson, you can leave the Travel\_Design.xd file open. Otherwise, for each open document, choose File > Close (macOS) or click the X in the upper-right corner (Windows).

## Review questions

- 1 What is Path Edit mode?
- 2 How do you combine several shapes into one?
- 3 How do you draw straight vertical, horizontal, or diagonal lines using the Pen tool (✎)?
- 4 How do you draw a curved path using the Pen tool?
- 5 How do you convert a smooth point on a curve to a corner point?
- 6 What is a UI kit?

## Review answers

- 1 Path Edit mode is when shape anchor points are visible but moving the mouse does not draw anything. In Path Edit mode, you can edit or delete existing anchor points or add new anchor points.
- 2 To combine several shapes into one, you can select the shapes and then apply one of the combine options in the Property Inspector to create new shapes out of the overlapping objects.
- 3 To draw a straight line, click with the Pen tool (✎) and then move the pointer and click again. The first click sets the starting anchor point, and the second click sets the ending anchor point of the line. To constrain the straight line vertically, horizontally, or along a 45 degree diagonal, press the Shift key as you click to create the second anchor point with the Pen tool.
- 4 To draw a curved path with the Pen tool, click to create the starting anchor point and release the mouse button. Move the mouse pointer to another part of the artboard, drag to set the direction of the curve, and then release the mouse button to end the curve.
- 5 To convert a smooth point on a curve to a corner point (or vice versa), double-click the shape or path with the Select tool (☛) to enter Path Edit mode. With the anchor points showing on the selected artwork, double-click an anchor point to convert it to the opposite. If it's currently smooth, it will become a corner point and vice versa.
- 6 A UI kit is a file or set of files that contains resources, such as user-interface elements (buttons, icons, and more), that are specific to an operating system. It can help you design apps (or websites) that match a design language like iOS.

# INDEX

## A

- action setting, 233
- Adobe After Effects, 331
- Adobe Authorized Training Centers, 5
- Adobe Create Magazine, 5
- Adobe forums, 5
- Adobe I/O developer console, 334
- Adobe ID, 179, 273, 302, 309
- Adobe Illustrator. *See* Illustrator
- Adobe Photoshop. *See* Photoshop
- Adobe XD
  - described, 8, 27
  - image formats, 57
  - installing, 2
  - mobile app, 273–274
  - plugins, 332–336
  - resources, 5, 26
  - starting work in, 10
  - system requirements, 2
  - third-party integration, 338
  - unit-less nature of, 45
  - vector graphics and, 91
  - workspace, 10, 11–12
- Adobe XD Learn & Support page, 5, 26
- Adobe XD product home page, 5
- After Effects projects, 331
- Align Center button, 69
- Align To Pixel Grid option, 107, 109
- aligning
  - artboards, 42, 145
  - content to pixel grid, 107–109
  - guides used for, 92, 111, 145–146
  - objects to artboard, 139
  - objects to each other, 142–143
  - setting up objects for, 139–142
- anchor points
  - creating, 111
  - editing, 102, 105
  - paths and, 112
- Android
  - exporting PNG files for, 328
  - measurement unit for, 309
  - mobile device previews, 273, 275
  - resolution settings for, 310
- animation
  - auto-animating content, 248–250
  - connection setting for, 233
- appearance changes
  - artboard, 40
  - repeat grid, 210
  - shape, 96–97
- application modes, 11, 12
- area text, 78, 80–81, 87
- arranging
  - artboards, 38–39
  - objects, 127–128
- Artboard tool, 34–36, 53
- artboards, 11, 12
  - aligning, 42, 145
  - appearance changes, 40
  - arranging, 38–39
  - browsing on devices, 278
  - changing multiple, 41
  - copying and pasting, 39
  - creating, 34–36
  - deleting, 35
  - distributing, 145

- dragging, 38–39
- duplicating, 39
- editing, 37–39
- grids for, 43–48, 53, 112
- guides for, 49–50
- home screen, 309
- linking, 232–234
- managing with Layers panel, 51–52, 53, 130
- measurement unit for, 309
- navigating, 22–23
- orientation options, 37
- renaming, 23, 36
- reordering, 129, 130, 151
- resizing, 37, 53
- responsive resize for, 42, 217–218
- Retina (HiDPI) sizing for, 32
- review questions/answers on, 53
- screens represented as, 31
- selecting, 37, 38, 40, 41

artwork

- adding from Illustrator, 71–72
- aligning to pixel grid, 107–109
- components created from, 162–163
- copying and pasting, 118
- editing with Pen tool, 117–118
- masking images or, 73–78
- zooming in/out of, 17–21, 27

assets

- adding to CC Libraries, 179–182
- exporting, 320–331
- importing, 57–61
- linked, 175
- managing, 155–178
- naming/renaming, 323, 339

Assets panel, 11, 12, 155–178

- character styles in, 159–162
- components in, 162–178
- custom colors in, 155–158
- gradient colors viewed in, 193
- tooggling open/closed, 155
- types of assets in, 155, 187

- audio recording, 269, 271
- auto-animating content, 248–250, 265
- auto-correct functionality, 79
- Autosave feature, 32
- Available Offline option, 282

## B

backgrounds

- blur effect for, 197–198, 225
- color for artboard, 40, 41

blend modes, 202

blur effects

- background blur, 197–198
- object blur, 198–199

Boolean operations, 104

borders

- changing fills and, 96–97
- options for working with, 98–99

Bring Forward command, 127

Bring to Front command, 127, 257

Browse artboards option, 278

browsers

- previewing prototypes in, 297–298
- supported in Adobe XD, 297
- viewing design specs in, 308, 309, 310, 311–316

## C

CC Libraries panel, 179–180

character styles, 159–162

- CC Library, 182–183
- deleting, 162
- editing, 161–162, 187
- saving, 159–161

circles

- creating, 76, 93, 98, 104
- duplicating, 100
- image fills in, 76

*Classroom in a Book* training series, 1

closed paths, 112

- cloud documents
  - described, 32, 285
  - history states for, 283–284
  - offline versions of, 281, 282
  - previewing on devices, 280–282
  - saving XD documents as, 280
  - sharing, 290–293
  - video on working with, 33
- code, embed, 301
- coediting documents, 293
- color picker, 41, 96, 97, 191
- color stops, 191, 192, 195, 196
- color swatches
  - deleting, 97, 157
  - editing, 157–158
- colors
  - background, 40, 41
  - border, 97, 98
  - fill, 96, 116
  - gradient, 194–195
  - saving, 155–157
- Column Width values, 48
- combining shapes, 104–106, 123
- comment icon, 302, 305
- comments, 301–307, 317
  - adding, 301–302
  - deleting, 306
  - guest, 303
  - pinning, 303–305
  - working with, 305–307
- Comments panel, 302, 303, 304–305
- components, 162–178
  - breaking links to, 178
  - copying instances of, 173–174
  - creating, 162–163, 187
  - defined, 162
  - editing, 165–166
  - footer groups as, 167
  - hover state added to, 242–244
  - instances of, 164–165, 166, 187
  - linked, 173–178
  - local, 173, 178
  - master, 165, 239–241
  - multiple states added to, 244–248
  - replacing, 168–170
  - ungrouping, 171–172
- connecting handles, 234
- connections
  - adding to component masters, 239–241
  - copying and pasting, 241
  - creating, 232–234
  - editing, 236–239, 265
  - previewing, 234–235
  - types of, 265
  - See also* links
- content
  - aligning, 107–109, 139–145
  - auto-animating, 248–250
  - grouping, 136–138, 219–220
  - hiding, 134
  - Illustrator, 71–72
  - locking, 133
  - masking, 73–78
  - ordering/reordering, 129–130
  - Photoshop, 65–70
  - saving as a component, 162–163
  - selecting, 130–133
  - Sketch, 70
- Content-aware layout 215–217
- Convert to Path command, 80, 107
- Copy Embed Code command, 300, 301
- Copy Link icon, 296, 300
- copying and pasting
  - artboards, 39
  - component instances, 173–174
  - connections, 241
  - embed code, 301
  - guides, 50
  - Photoshop files, 65–66
  - replacement images, 62
  - selected artwork, 118
  - text, 81

- from UI kits, 122
- Corner Count values, 94, 95
- corner points, 105, 113, 123
- Corner Radius values, 94, 100, 101
- corner radius widgets, 100
- Create Link button, 296
- Creative Cloud
  - cloud documents stored in, 32
  - previewing documents loaded from, 273, 280–282
  - saving XD documents to, 280
  - shared prototypes stored in, 317
  - working with documents from, 33
- Creative Cloud Libraries, 179–186, 187
  - adding XD assets to, 179–181
  - character styles used from, 182–183
  - editing items in, 186
  - explanation on using, 179
  - graphics used from, 184–185
  - Illustrator assets added to, 181–182
  - selecting multiple objects in, 185
- curves, drawing, 112–114, 123
- Custom Size icon, 31

## D

- Dash values, 107
- dashed lines, 107
- deleting
  - artboards, 35
  - character styles, 162
  - color swatches, 97, 157
  - comments, 306
  - downloaded XD files, 279
  - guides, 50
  - See also* removing
- Design mode, 13–15
  - panels, 14–15
  - Property Inspector, 13–14
  - tooggling Prototype mode and, 15, 230
  - tools used in, 13
- design review, 289, 295
- design specs, 308–316
  - inspecting, 311–316
  - sharing, 308–310
  - viewing, 311–312, 315
- designs
  - finishing, 336–338
  - previewing, 24
  - sharing, 25, 27
  - workflow for UX, 8–9
- Desktop Preview, 24, 234, 240
- destination setting, 233
- development, sharing for, 289, 308–310
- Device Preview option, 276
- device previews, 273–282
  - cloud documents for, 280–282
  - deleting files from, 279
  - mobile app setup for, 273–274
  - navigating the mobile app for, 277–279
  - USB connection for, 274–279, 285
- diamond icon, 168, 248
- direction handles, 112
- direction lines, 112
  - creating, 113, 114, 116
  - splitting, 115
- direction points, 112
- distances
  - setting between gaps, 148–149
  - viewing with temporary guides, 150
- distributing
  - artboards, 145
  - objects, 143–145
- documents
  - cloud, 32
  - coediting, 293
  - creating, 31–32
  - panning, 21
  - saving, 33
  - sharing, 25, 27
  - switching between, 26
  - zooming in/out of, 17–21, 27

- downloading
  - cloud documents, 282
  - lesson files, 3
  - UI kits, 119–120
- drag triggers, 251–252
- dragging
  - artboards, 38–39
  - images, 61
  - text, 81
- drawing
  - curves, 112–114, 123
  - grid used for, 112
  - straight lines, 110–112, 123
- drop shadow effect, 200–201
- duplicating
  - artboards, 39
  - lines, 108
  - shapes, 100
  - text, 85–86
- duration setting, 233, 236, 251

## E

- easing transitions, 233
- editing
  - artboards, 37–39
  - artwork, 117–118
  - CC Library items, 186
  - character styles, 161–162, 187
  - color swatches, 157–158
  - comments, 306
  - components, 165–166
  - connections, 236–239
  - gradient colors, 194–195
  - group content, 137–138
  - images in Photoshop, 69–70
  - masks, 74–76, 77–78
  - repeat grids, 206–210
  - shapes, 101–103, 106–107, 117–118
- educator resources, 5
- effects, 197–202
  - background blur, 197–198

- blend mode, 202
- drop shadow, 200–201
- object blur, 198–199
- Ellipse tool, 76, 93, 98, 104
- ellipses, creating, 93–94
- embedding shared prototypes, 301, 317
- Export dialog box, 322, 324, 325, 327, 331
- Export For option, 309, 310, 326, 330
- exporting assets, 320–331, 339
  - to After Effects, 331
  - file formats for, 320, 339
  - from Illustrator, 72
  - as JPEG files, 330–331
  - as PDF files, 321–322
  - as PNG files, 325–329, 339
  - as SVG files, 323–325
- eye icon, 134
- Eyedropper tool, 96, 162

## F

- feedback icon, 297
- file formats
  - for exporting assets, 320, 339
  - supported for images, 57, 87
- fills
  - artboard, 40
  - gradient, 191–196
  - image, 76–78
  - shape, 96–97
- filtering options
  - Comments panel, 307
  - Layers panel, 134–135
- Fix Height option, 221
- Fix Width option, 221, 222
- fixed-position objects, 258–259, 265
- flipping
  - lines, 108
  - shapes, 103
- Flow view, 311, 312
- folder icon, 68, 168

Font menu, 82  
fonts  
    fixing missing, 84  
    formatting, 82, 83–84  
    message about missing, 90  
    mobile previews and, 275, 276  
    used in lesson files, 4  
footer components, 167  
formatting text, 82–84, 159–162  
forums, Adobe, 5  
frames  
    resizing images within, 64  
    support for inline, 301  
full-screen mode, 241, 297

## G

Game Bar app, 271–272  
gaps  
    changing in dashed lines, 107  
    setting between objects, 148–149  
gradient editor, 191, 192  
gradient slider, 192, 194, 195, 196  
gradients, 191–196  
    applying, 191–194, 225  
    description of, 191  
    direction and length adjustments, 195–196  
    editing colors of, 194–195  
    linear and radial, 191  
grammar check, 86  
graphics  
    creating and working with, 91  
    using from CC Libraries, 184–185  
    *See also* raster images; vector graphics  
Grid view, 157, 311  
grids, 43–48, 53  
    drawing with, 112  
    layout, 43, 47–48  
    pixel, 107–109  
    square, 43–46

*See also* repeat grids  
groups, 136–138  
    creating, 136–137, 219–220  
    editing content within, 137–138, 151  
guest commenting, 303  
guides  
    alignment, 92, 111, 145–146  
    artboard, 49–50  
    deleting, 50  
    locking, 50  
    temporary, 145–146, 150  
Gutter Width values, 48

## H

hand pointer, 235  
Hand tool, 21, 80, 112  
Helvetica Neue font, 4, 79, 82, 161  
HEX values, 40, 116, 162, 313  
hiding/showing  
    content on artboards, 134  
    square grids, 93  
HiDPI (Retina) sizing, 32, 326  
high-fidelity (hi-fi) designs, 9  
Highlight On Canvas command, 84, 157, 161  
history of cloud documents, 283–284  
home icon, 297, 298  
Home screen, 10, 31, 231, 265, 309  
hotspot hints, 277  
hover state, 242–244  
HSB color values, 41, 128, 192, 194

## I

Illustrator  
    adding assets to CC Libraries from, 181–182  
    bringing in content from, 71–72  
    editing vector graphics in, 186  
    exporting artwork from, 72  
image icon, 68, 130

- images, 57–78
  - adding from Photoshop, 65–69
  - copying and pasting, 62, 65–66
  - dragging and dropping, 61
  - editing in Photoshop, 69–70
  - filling shapes with, 76–78
  - formats supported for, 57, 87
  - importing, 57–61
  - masking, 73–78
  - opening from Sketch, 70
  - ordering in repeat grids, 208
  - positioning, 63
  - replacing, 62, 87, 208
  - sizing/resizing, 57, 58, 64
  - transforming, 63
  - using from CC Libraries, 184, 186
- importing
  - drag and drop for, 61
  - images into Adobe XD, 57–61
  - multiple assets, 59–60
  - objects with gradients, 191
  - text, 81
- inline frames, 301
- inspecting design specs, 311–316
- installing
  - Adobe XD, 2
  - plugins, 332–334
- instances of components
  - adding, 164–165
  - editing, 166, 187
- interactions
  - applying multiple, 252–254
  - copying and pasting, 241
- interactivity
  - example of prototyping, 9
  - recording in prototypes, 269–272, 285
- Invite To Document icon, 290, 291, 292, 317
- iOS
  - exporting PNG files for, 329
  - measurement unit for, 309
  - mobile device previews, 273, 274
  - resolution settings for, 310
- iTunes, 274
- J**
  - JPEG format
    - described, 320
    - exporting files as, 330–331, 339
    - importing images in, 57
  - jumpstart method, 4
- L**
  - Layers panel, 11, 12, 129–135
    - grouping objects using, 137
    - icons indicating object type in, 130
    - locking and hiding content in, 133–134
    - managing artboards with, 51–52, 53, 130
    - opening and working in, 14–15, 22–23
    - reordering content in, 129–130
    - searching and filtering in, 134–135
    - selecting content using, 130–133
    - toggling the visibility of, 51
  - layout grids
    - applying, 47–48
    - explained, 43
  - Learn & Support page, 5, 26
  - lessons in book
    - downloading files for, 3
    - jumpstart method for, 4
  - libraries. *See* Creative Cloud Libraries
  - Libraries panel, 181–182
  - Line Spacing option, 82
  - Line tool, 99, 108
  - linear gradients, 191
  - lines
    - creating, 99, 108
    - curved, 112–114, 123
    - dashed, 107
    - drawing, 110–114, 123
    - duplicating, 108

- flipping, 108
- straight, 110–112, 123
- link icon, 174, 176
- linked assets, 175
- linked components, 173–178
  - breaking links to, 178
  - creating, 173–174
  - explained, 173
  - updating, 175–177
- Linked Screens icon, 311
- links
  - creating, 232–234
  - editing, 236–239
  - managing shared, 316
  - previewing, 234–235
  - sharing prototype, 299–300
  - See also* connections
- List View button, 164, 174, 260
- Live Preview option, 274, 285
- local components, 173, 178
- Lock Aspect option, 37, 58, 63, 76, 77, 140, 147
- locking
  - content, 133
  - guides, 50
- low-fidelity wireframes, 9, 27

## M

- macOS
  - native zooming, 19
  - prototype recording, 269–270
  - system requirements, 2
  - workspace, 11
- Manage Links command, 316
- manual constraints, 220–222
- margin settings, 48
- Mark For Export icon, 308
- Mark Version icon, 284
- Mask with Shape command, 74
- masks, 73–78, 87

- editing, 74–76, 77–78
- image fill, 76–78
- removing from content, 76
- shape or path, 73–74
- master components
  - adding connections to, 239–241
  - editing, 165
- Maximize application option, 10
- measurement units, 45, 309, 315
- menu bar, 11
- microphone use, 269, 271
- Missing Fonts message, 90
- mobile app for Adobe XD, 273–274
  - navigating, 277–279
  - setting up, 273–274
- mobile device previews, 273–282
  - cloud documents for, 280–282
  - deleting files from, 279
  - mobile app setup for, 273–274
  - navigating the mobile app for, 277–279
  - USB connection for, 274–279, 285
- modes
  - Design mode, 13–15, 230
  - Prototype mode, 15–16, 230
- MP4 file format, 269, 285

## N

- naming/renaming
  - artboards, 23, 36
  - assets, 323, 339
  - groups, 136
- navigating artboards, 22–23
- nesting repeat grids, 204
- New State option, 244, 245, 246
- notifications, 291, 292
- notifications icon, 297

## O

- object blur effect, 198–199, 225
- objects
  - aligning to artboard, 139
  - aligning to each other, 142–143
  - applying multiple interactions to, 252–254
  - arranging, 127–128
  - distributing, 143–145
  - fixed-position, 258–259
  - grouping, 136–138
  - locking, 133
  - positioning, 145–150
  - saving as components, 162–163
  - setup to align, 139–142
- offline cloud documents, 281, 282
- on-canvas gradient editor, 192, 195, 196
- open paths, 112
- ordering/reordering
  - artboards, 129, 130, 151
  - images in repeat grids, 208
  - layer content, 129–130
- organizing content, 124–151
  - aligning objects and, 139–143
  - arranging objects and, 127–128
  - distributing objects and, 143–145
  - groups created for, 136–138
  - Layers panel for, 129–135
  - positioning objects and, 145–150
  - review questions/answers on, 151
- orientation, artboard, 37
- Outer Stroke button, 98
- overlays, 260–264
  - creating, 262–264
  - setting up content for, 260–262
- overriding properties, 166

## P

- padding
  - setting values for, 215–217
  - video on working with, 217
- panels
  - overview of main, 14–15
  - See also* Assets panel; Layers panel
- panning documents, 19, 21
- pasteboard, 11, 131–132, 151
- pasting. *See* copying and pasting
- Path Edit mode, 75, 102, 105, 117–118, 123
- paths
  - components of, 112
  - converting text to, 80
  - curved, 112–114, 123
  - direction changes, 114–116
  - masking with, 73–74
  - straight, 110–112
- PDF format
  - described, 320
  - exporting as, 321–322
- Pen tool, 110–118, 123
  - curves drawn with, 112–114
  - editing artwork with, 117–118
  - lines drawn with, 110–112
  - path direction changes and, 114–116
- Photoshop
  - bringing in content from, 65–69, 87
  - copying and pasting from, 65–66
  - editing images in, 58, 69–70, 186
  - opening files from, 67–69
- Pin icon, 259, 303, 304, 305
- pinned comments, 303–305, 317
- pixel grid, 107–109
- pixels, virtual, 43
- plugins, 332–336
  - creating, 334
  - explained, 332, 339
  - installing, 332–334
  - using, 334–336

- Plugins panel, 11, 12, 332
- PNG format
  - described, 320
  - exporting as, 325–329, 339
- point text, 78–80, 87
- Polygon tool, 94, 95
- polygons, creating, 94–95
- positioning objects, 145–150
  - aligning with temporary guides, 145–146
  - fixed positioning for, 258–259
  - setting gap distances and, 148–149
  - viewing distances and, 150
- presentation, sharing for, 289
- Preview window, 24, 234–235
- previewing
  - connections, 234–235
  - designs, 24, 27
  - full-screen, 241
  - prototypes, 273–282
  - See also* mobile device previews
- Previous Artboard action, 239, 240
- Property Inspector, 11, 12, 13–14
- Prototype mode, 15–16, 230, 314
- prototypes, 226–285
  - auto-animating content in, 248–250
  - component states in, 242–248
  - copying/pasting connections in, 241
  - drag triggers added to, 251–252
  - editing connections in, 236–239
  - fixed-position objects in, 258–259
  - home screen setup for, 231
  - interactivity in, 9, 232
  - linking artboards in, 232–234
  - mode for creating, 15–16, 230
  - multiple interactions in, 252–254
  - overlays used in, 260–264
  - preserving scroll position in, 254–258
  - previewing on a device, 273–282, 285
  - purpose of using, 9, 27, 229
  - recording interactivity in, 269–272, 285

- review questions/answers on, 265, 285
- sharing for review, 294–307
- speech playback added to, 264
- testing connections in, 234–235
- timed transitions in, 264
- timed triggers in, 264
- voice triggers in, 253, 264

## Q

- Quality setting, 330, 339

## R

- radial gradients, 191
- radius, corner, 100, 101
- raster images
  - sizing for Adobe XD, 58
  - using from CC Libraries, 184, 186
  - See also* images
- real-time preview, 273
- recording prototypes, 269–272, 285
  - on macOS, 269–270
  - on Windows, 271–272
- Rectangle tool, 73, 92, 99, 101, 127
- rectangles
  - creating, 92, 101
  - masking with, 73–74
  - rounding corners of, 99–101
- removing
  - masks from content, 76
  - text from text area, 81
  - See also* deleting
- renaming. *See* naming/renaming
- reordering. *See* ordering/reordering
- repeat grids, 203–214
  - adding content to, 210–211, 225
  - creating, 204–206
  - description of, 203, 225
  - editing content in, 206–209
  - finishing touches for, 212–214
  - modifying appearance of, 210

- repeat grids (*continued*)
    - nesting, 204
    - ordering images in, 208
    - replacing images in, 208, 225
    - selecting content for, 203–204
    - setting up text files for, 209
    - sizing/resizing, 205
    - ungrouping, 212
  - replacing
    - components, 168–170
    - images, 62, 87, 208
  - replying to comments, 306
  - resizing. *See* responsive resize; sizing/resizing
  - resolution settings, 310
  - resolved comments, 306–307, 317
  - resources for Adobe XD, 5, 26
  - responsive resize, 215–222
    - artboards and, 42, 217–218
    - description of, 215
    - finishing designs after, 222–224
    - getting started with, 217–218
    - grouping content for, 219–220
    - manual constraints for, 220–222
    - padding values for, 215–217
  - Retina (HiDPI) sizing, 32, 326
  - review, sharing for, 289, 294–310
  - rotating
    - artwork, 75
    - devices, 277
    - shapes, 102
    - text, 79
  - Round Cap button, 99, 108
  - rounded-corner rectangles, 99–101
- S**
- San Francisco fonts, 4, 120
  - saving
    - character styles, 159–161
    - colors, 155–157
    - components, 162–163
    - documents, 33
  - scaling images, 58
  - screens
    - device size options for, 31
    - See also* artboards
  - scroll position preservation, 233, 254–258
    - content setup for, 254–256
    - steps in process of, 256–258
  - searching
    - in Layers panel, 134–135
    - in Plugins panel, 332–333
  - Segoe UI font, 79, 82, 161
  - Select tool, 13, 34, 38, 40, 41
  - selecting
    - artboards using Select tool, 37, 38, 40, 41
    - content using Layers panel, 130–133
    - multiple objects in CC Libraries, 185
  - Send Backward command, 127, 128
  - Send To Back command, 127
  - shadows, drop, 200–201
  - shapes, 91–109
    - borders for, 96–98
    - combining, 104–106, 123
    - creating, 92–95
    - duplicating, 100
    - editing, 101–103, 106–107, 117–118
    - fills for, 76–78, 96–97
    - flipping, 103
    - masking with, 73–74
    - rotating, 102
    - rounding corners of, 99–101
  - Share mode, 289, 294, 295, 301, 309, 316
  - shared prototypes, 294–307
    - commenting on, 301–303, 317
    - embedding in web pages, 301
    - file storage for, 317
    - pinning comments in, 303–305
    - steps for creating, 294–298
    - updating, 298–300

- working with comments in, 305–307
- sharing, 286–317
  - cloud documents, 290–293
  - design specs, 308–310
  - documents, 25, 27
  - managing links for, 316
  - overview on methods of, 289
  - prototypes for review, 294–307
  - review questions/answers on, 317
- sizing/resizing
  - artboards, 37, 53, 217–218
  - images, 57, 58, 64
  - repeat grids, 205
  - See also* responsive resize
- Sketch files, 70
- smooth points, 113, 114, 115, 123
- snapping
  - avoiding, 94, 112
  - disabling, 63, 87
- speech playback, 264
- spelling check, 86
- square grids
  - explained, 43
  - hiding/showing, 93
  - shape creation and, 101
  - snapping function and, 94, 103, 112
  - turning off, 94
  - working with, 43–46
- stacking order, 127, 151
- Star Ratio option, 94, 95
- stars, creating, 95
- states added to components
  - hover state, 242–244
  - multiple states, 244–248
  - principles for editing, 248
- straight lines, 110–112, 123
- styles, text/character, 82–84, 159–162
- Subtract option, 105
- SVG format
  - described, 320
  - exporting as, 323–325

- swapping components, 168–170
- swatches. *See* color swatches
- Swatches button, 186
- symbols. *See* components
- system requirements, 2, 273

## T

- tap triggers, 233, 238, 250, 253, 256
- temporary guides
  - aligning with, 145–146
  - viewing distances with, 150
- text, 78–86
  - area, 78, 80–81, 87
  - converting, 80
  - duplicating, 85–86
  - importing, 81
  - point, 78–80, 87
  - removing, 81
  - rotating, 79
  - spelling/grammar check, 86
  - styling, 82–84, 159–162
- text files, for repeat grids, 209
- Text tool, 79, 80, 83, 159, 166
- third-party integration, 338
- timed transitions, 264
- timed triggers, 264
- toolbar, 11, 12
- tools
  - Design mode, 13
  - Prototype mode, 16
- transforming images, 63
- transitions, 233, 264
- triggers, 233, 265
  - drag, 251–252
  - tap, 233, 238, 250, 253, 256
  - timed, 264
  - voice, 253, 264

## U

- UI Faces plugin, 333, 334, 335
- UI kits, 119–122, 123
  - copying/pasting from, 122
  - downloading, 119–120
  - opening content in, 120–122
- undo command, 111, 166, 221
- Ungroup Grid button, 212, 335
- Ungroup Mask command, 76
- ungrouping
  - components, 171–172
  - grouped icons, 147
  - repeat grids, 212
- units of measurement, 45, 309, 315
- Unlink Component option, 204
- updating
  - cloud documents, 282
  - linked components, 175–177
  - shared prototypes, 298–300
- USB-connected previews, 273, 274–279, 285
- user experience (UX) design workflow, 8–9
- user testing, sharing for, 289

## V

- vector graphics
  - Adobe XD and, 91
  - Illustrator content as, 71
  - using from CC Libraries, 184, 186
  - working with shapes as, 91–109
- versions of cloud documents, 283–284
- video recording prototypes, 269–272
- videos
  - on cloud documents, 33
  - on coediting documents, 293
  - on exporting Illustrator artwork, 72
  - on padding, 217
  - on speech playback, 264
  - on timed transitions, 264
  - on timed triggers, 264

- on voice triggers, 264
- view commands, 17–18
- View Specs button, 312
- viewing
  - design specs, 311–312, 315
  - distances, 150
- virtual pixels, 43
- voice triggers, 253, 264

## W

- Web Edition of book, 3
- web pages
  - embedding shared prototypes in, 301, 317
  - measurement units for, 309
  - resolution settings for, 310
- widgets, corner, 100
- Windows
  - native zooming, 19
  - prototype recording, 271–272
  - system requirements, 2
  - workspace, 12
- wireframes, low-fidelity, 9, 27
- workflow, UX design, 8–9
- workspaces, 10
  - macOS, 11
  - Windows, 12

## X

- XD program. *See* Adobe XD
- XDX file format, 332

## Z

- Zeplin tool, 338
- Zoom tool, 19–21, 108
- zooming in/out, 17–21, 27