Building Houses
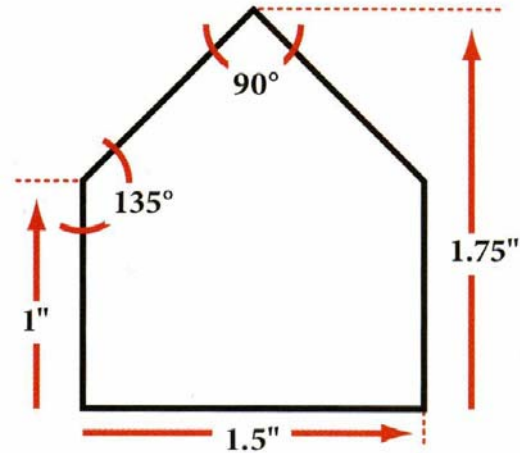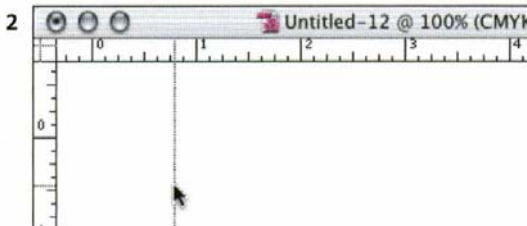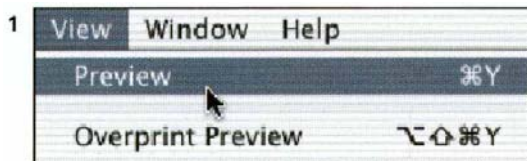
Sequential Object Construction Exercises
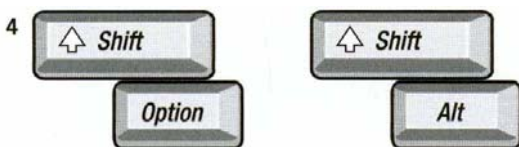
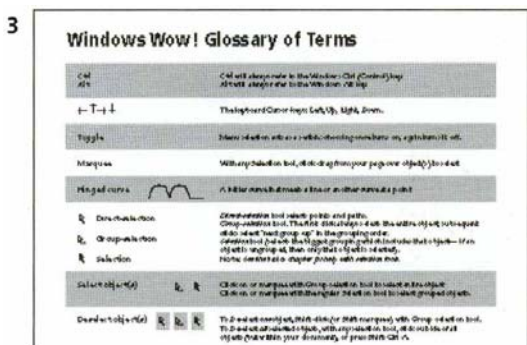**Overview:** *Explore different approaches to constructing the same object with Illustrator's basic construction tools.*

Dragging out a guide from the Ruler, and choosing Window>Info to open the Info palette if it's not open before you begin

This sequence of exercises explores different ways to construct the same simple object, a house. The purpose of these exercises is to introduce you to the flexibility of Illustrator's object construction, so don't worry if some exercises seem less efficient than others. In Preferences > Units & Display Performance, set Units > General for Inches (so you can use the numbers provided and the measurements above). And read through the recommendations below for preparing your working environment.

1 **Work in Outline mode.** Doing so keeps you from being distracted by fills or line weights, and lets you see the centers of geometric objects (marked by "x").

2 **Use Show Rulers and Show Info.** Choose Show Rulers (View menu) so you can "pull out" guides. Use the Info palette to view numeric data as you work, or ignore the numeric data and just draw the houses by eye.

3 **Read through the *Wow! Glossary.*** Please make sure to read *How to use this book* and the *Glossary* pull-out card.

4 **Use "modifier" keys.** These exercises use Shift and Option (Opt) or Alt keys, which you must hold down until *after* you release your mouse button. If you make a mistake, choose Undo and try again. Some functions are also accessible from the Context-sensitive menu. Try keyboard shortcuts for frequently-used menu commands.


Hold down the Shift key to constrain movement to horizontal/vertical direction. For more modifier key help, see the end of this chapter for the "Finger Dance" lesson.

Exercise #1:

Use Add Anchor Point tool

1 Create a rectangle and a vertical guide. Create a wide rectangle (1.5" x 1") and drag out a vertical guide that snaps to the center.

2 Add an anchor point on the top. Use the Add Anchor Point tool to add a point on the top segment over the center guide.

3 Drag the new point up. Use the Direct Selection tool to grab the new point and drag it up into position (.75" for a total height of 1.75").
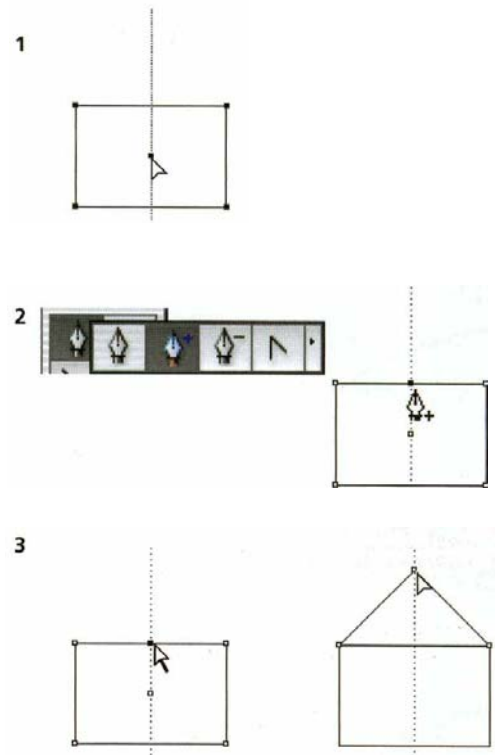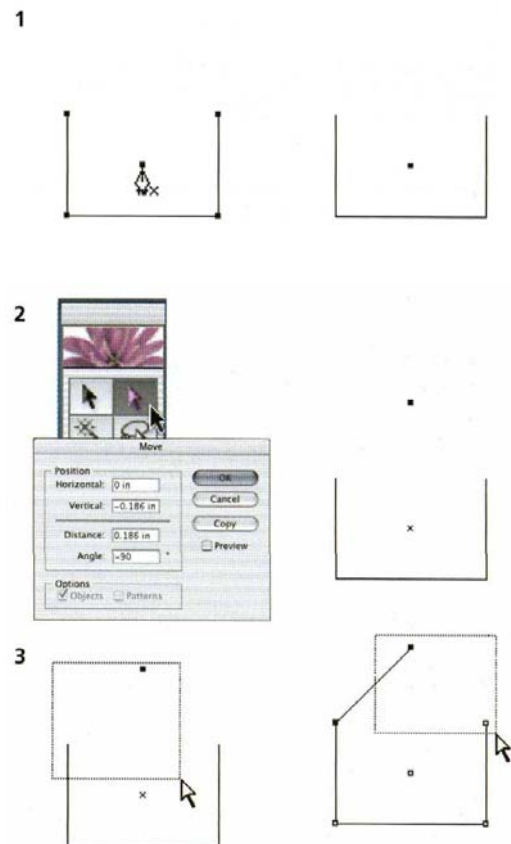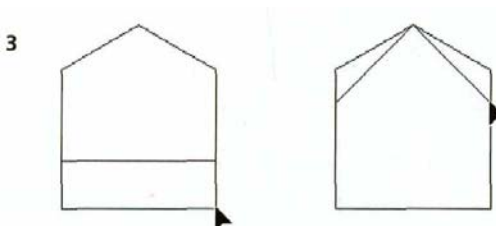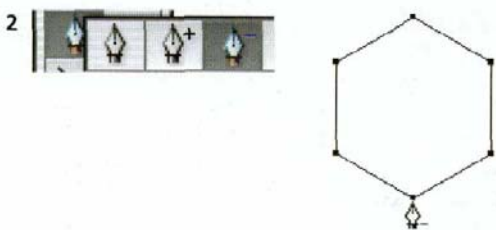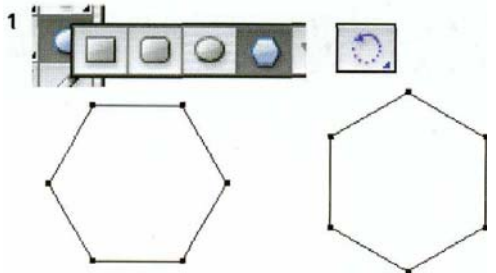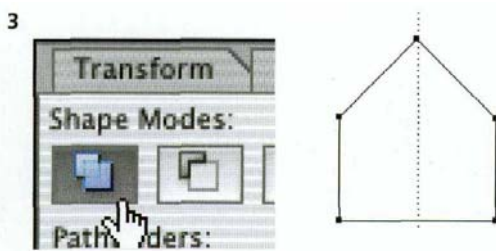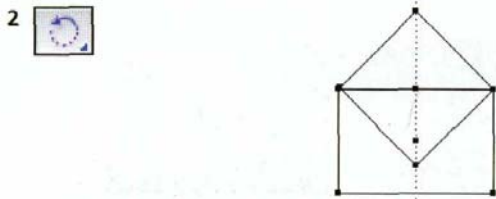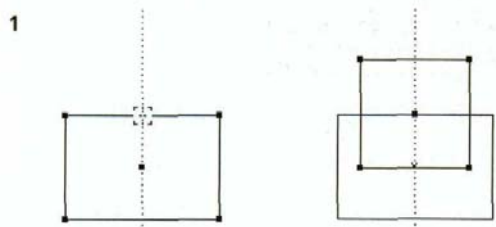
Exercise #2:

Make an extra point
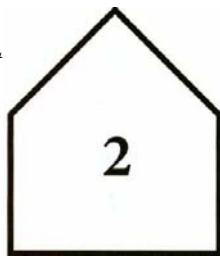
1 Create a rectangle, delete the top path and place a center point. Create a wide rectangle (1.5" x 1"). With the Direct Selection tool, select the top path segment and delete it. With the Pen tool, place a point on top of the rectangle center point.

2 Move the point up. Double-click on the Selection tool in the Toolbox to open the Move dialog box and enter a 1.25" vertical distance to move the point up.

3 Select and join the point to each side. Use the Direct Selection tool to select the left two points and Join (Object > Path > Join) them to the top point. Repeat with the right two points.

Exercise #3:
Rotate and Add
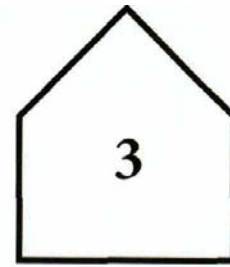
1 Create two rectangles, one centered on the other. Create a wide rectangle (1.5" x 1") and drag out a vertical guide, snapping it to the center. Hold down Opt/Alt and click with the Rectangle tool (Opt/Alt-click) on the center guide (on the top segment). Enter 1.05" x 1.05".

2 Rotate one rectangle. Double-click the Rotate tool to rotate the new rectangle around its center and enter 45°.

3 Select and Add the rectangles. Marquee-select both objects, choose Widow > Pathfinder and click the Add icon. Switch to Preview mode to see the single shape!
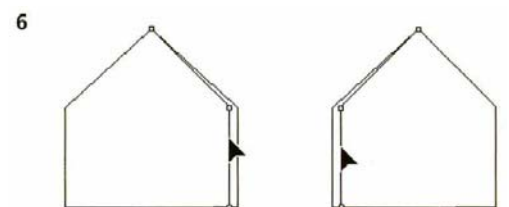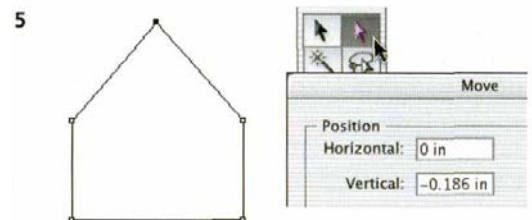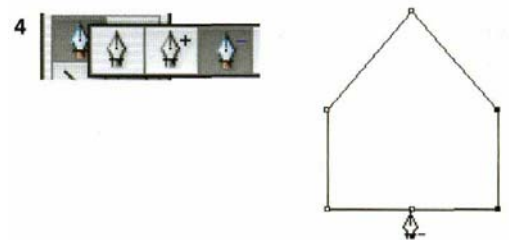
Exercise #4:
Make a six-sided polygon
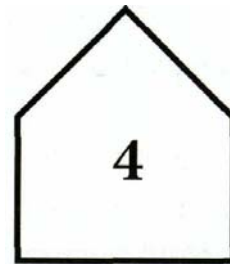
1 Create a six-sided polygon. With the Polygon tool selected, click once and enter 6 sides and a .866" Radius. Then double-click the Rotate tool and enter 30°.

2 Delete the bottom point. With the Delete Anchor Point tool, click on the bottom point to delete it.

3 Move the two bottom points down, then the two middle points. Use the Direct Selection tool to select the bottom two points. Then grab one of the points and Shift-drag in a vertical line (down .423"). Lastly, Direct-select, grab and Shift-drag the middle two points down vertically into position (down .275").

Exercise #5:

Use Add Anchor Points filter in a three-sided polygon
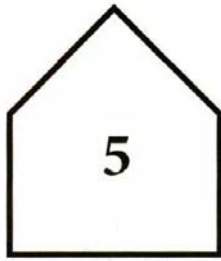

1 **Create a three-sided polygon.** With the Polygon tool selected, click once, then enter 3 sides and a 1.299" Radius.

2 **Use the Add Anchor Points filter.** With the polygon still selected, choose Object > Path > Add Anchor Points (use the default keyboard shortcut, or create your own).

3 **Average the two left points, then Average the two right points.** Direct-select the two left points and Average them along the vertical axis (Context-sensitive: Average, or Object > Path > Average), then repeat for the two right points.

4 **Delete the bottom point.** With the Delete Anchor Point tool, click on the bottom point to delete it.

5 **Move the top point down.** Use the Direct Selection tool to select the top point, then double-click on the Direct Selection tool itself (in the Toolbox) to open the Move dialog box and enter a -.186" vertical distance.

6 **Slide in the sides towards the center.** Use the Direct Selection tool to click on the right side of the house and drag it towards the center until the roofline looks smooth (hold down your Shift key to constrain the drag horizontally). Repeat for the left side of the house. Alternatively, select the right side and use the ← key on your keyboard to nudge the right side towards the center until the roofline looks smooth. Then, click on the left side to select it, and use the → key to nudge it towards the center. (If necessary, change your Keyboard Increment setting in the Preferences > General dialog.)
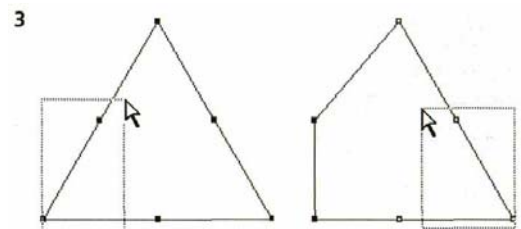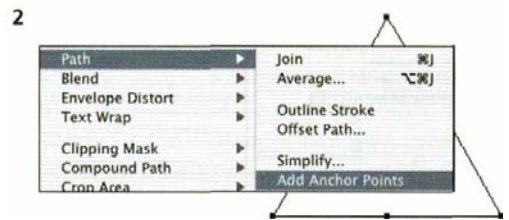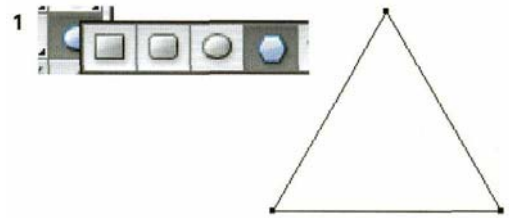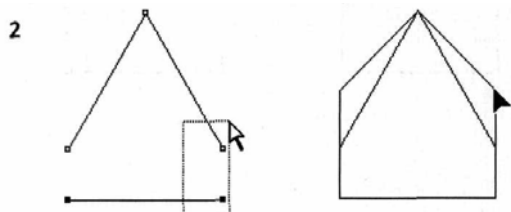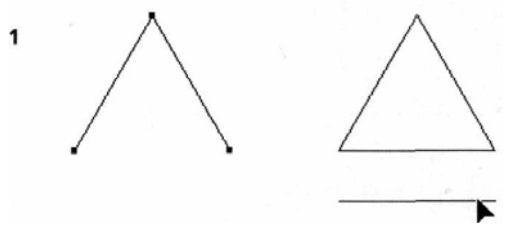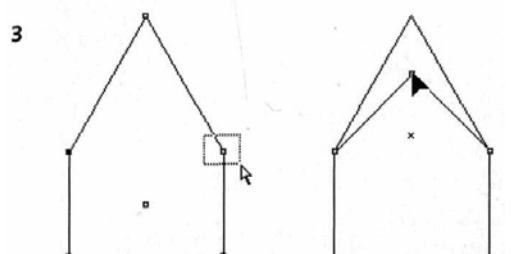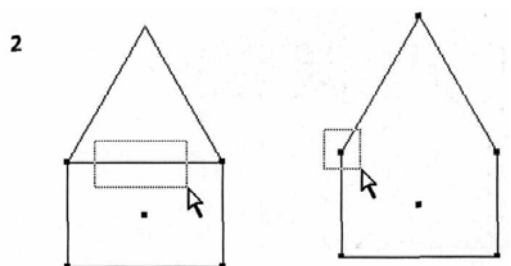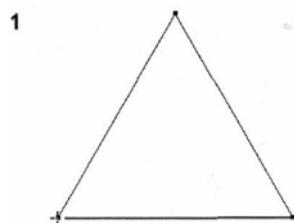
Exercise #6:

*Cut a path and
Paste in Front*
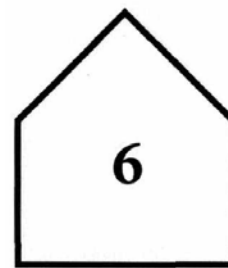
1 Cut, paste, then move the bottom of a triangle. With the Polygon tool selected, click once and enter 3 sides and a .866" Radius. With the Direct Selection tool, select and Cut the bottom path to the Clipboard, choose Edit > Paste in Front, then grab the bottom path and drag it into position (down .423").

2 Create the sides and move middle points into place. Direct-select the two right points and join them, then repeat for the two left points. Finally, select the two middle points, and grab one to drag *both* up (.275").

**Exercise #7:**

Join two objects
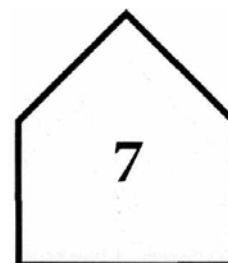
1 Make two objects. Click once with the Polygon tool, enter 3 sides and a .866" Radius. Zoom in on the lower left corner and, with the Rectangle tool, click exactly on the lower left anchor point. Set the rectangle to 1.5" x 1".

2 Delete the middle lines and join the corners. Direct-select marquee the middle bisecting lines and delete. Select the upper-left corner points and Average-Join by either Averaging and then Joining the points (see exercises #5 and #6 above) or by pressing ⌘ -Shift-Option-J/ Ctrl-Shift-Alt-J to average and join simultaneously. Select and Average-Join the upper right points.

3 Drag the top point down. Grab the top point, hold the Shift key and drag it into position (down .55").
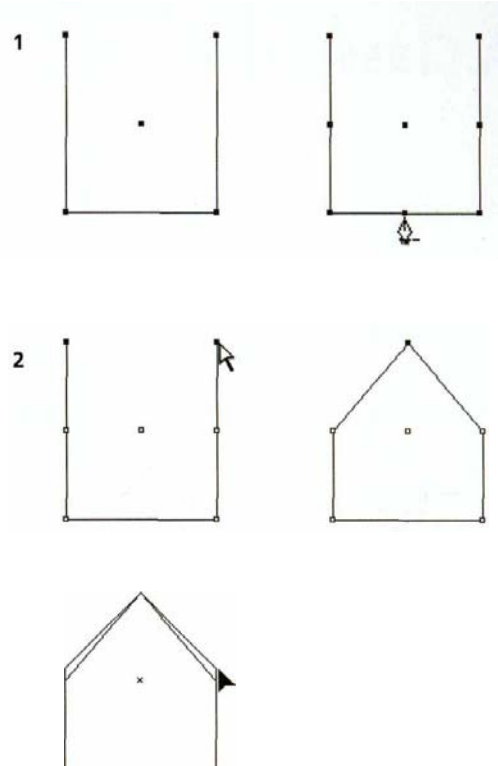
Exercise #8:

*Use Add Anchor Points filter, then Average-Join*
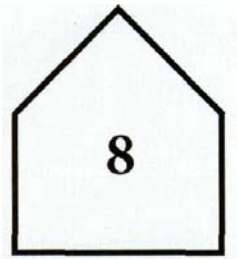
1 Make a tall rectangle, delete top path, add anchor points, remove bottom point. Create a tall rectangle (1.5" x 1.75") and delete the top path. Choose Add Anchor Points (Object >Path) and use the Delete Anchor Point tool to remove the bottom point.

2 Select and Average-Join the top points and move middles into position. Direct-select the top two points and Average-Join (see Exercise #7, step 2). Then Direct-select the middle points, grab one, and with the Shift key, drag them both into position (up .125").

Exercise #9:

Reflect a Pen profile
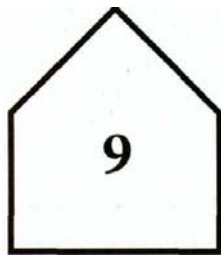
1 Create a house profile. Drag out a vertical guide, then reset the ruler origin on the guide. To draw the profile, use the Pen tool to click on the guide at the ruler zero point, hold down Shift (to constrain your lines to 45° angles) and click to place the corner (.75" down and .75" to the left) and the bottom (1" down).

2 Reflect a copy of the profile. Select all three points of the house profile With the Reflect tool, Option/Alt-click-on the guide line. Enter an angle of 90° and click Copy.

3 Join the two profiles. Direct-select and Join the bottom two points. Then Direct-select the top two points and Average-Join (see Exercise #7, step 2).