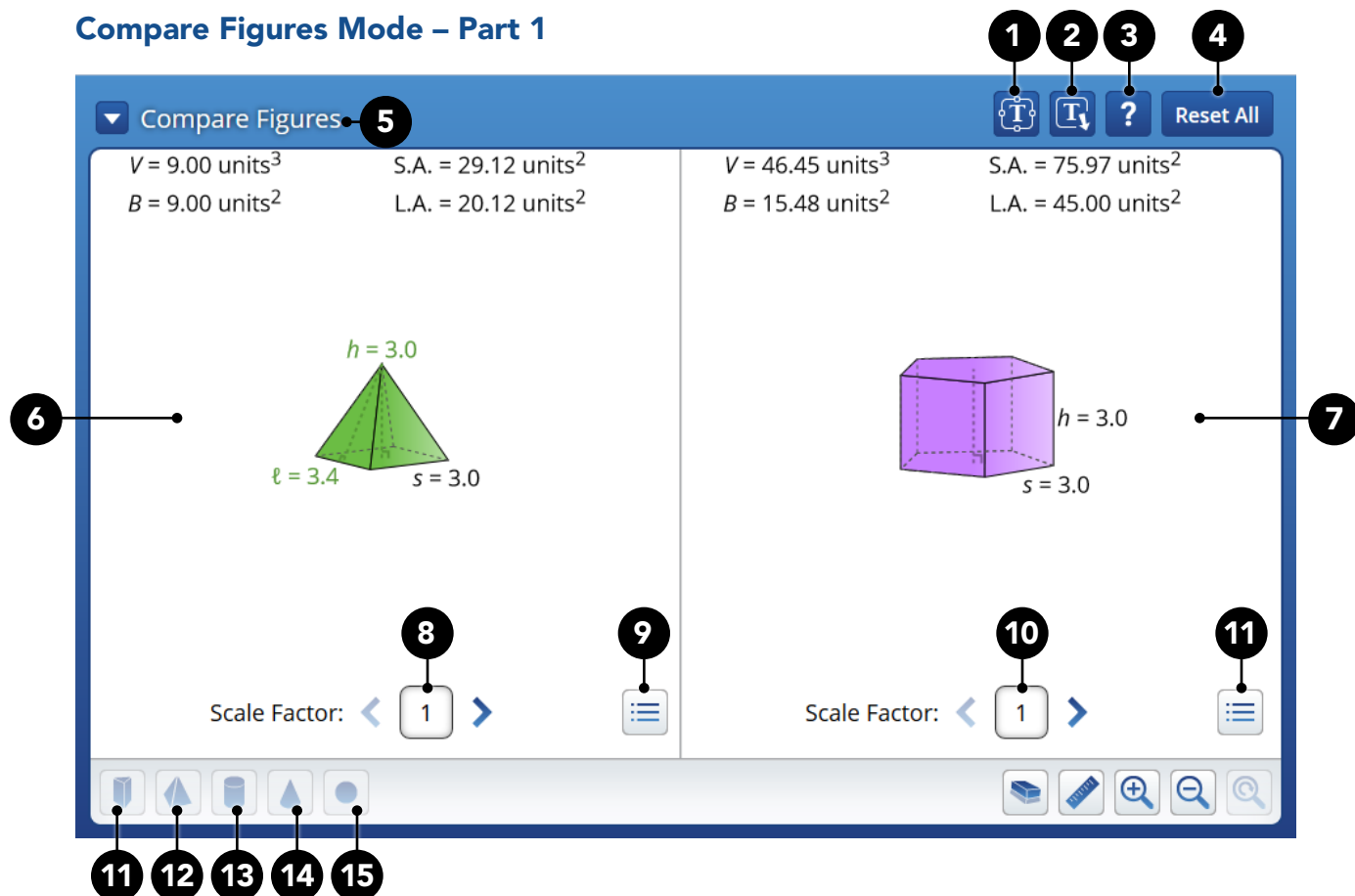


3D Geometry

In this tool, you can graph 3-D figures such as prisms, pyramids, spheres, cylinders, and cones, and then explore their properties. You can also explore, measure, and compare nets, volumes, and surface areas of 3-D figures.

Compare Figures Mode – Part 1



1. Textbox Add comments to the activity area.

2. Textbox with Arrow Add comments to the activity area, using the arrow to focus attention on a particular area.

3. Help Launch a help file PDF for the tool.

4. Reset All Reset all current work in the activity area for the tool back to the default settings.

5. Mode Drop-down Shows all the available modes of the 3-D Geometry tool. Selecting a mode will open the tool to that mode, and save any current work in the mode you were previously working in. There are two modes in the 3-D Geometry tool: Compare Figures, and Nets.

6. Figure 1 Area When adding a 3-D figures to compare, the first figure appears on the left side in green. When two figures are present, one must be deleted first to add a new one.

7. Figure 2 Area When adding a 3-D figures to compare, the second figure appears on the right side in purple. When two figures are present, one must be deleted first to add a new one.

3D Geometry

- 8. Scale Factor Figure 1** The scale factor option allows you to scale figure 1 by a factor of 1, 2, or 3. All measurements present on the figure update accordingly as the scale factor is changed.
- 9. Figure 1 Options Menu** You can adjust the measurements of the edges, sides, radius, or height of figure 1 using the options menu. Each of the measurements in the options menu can be adjusted between 1 and 10.
- 10. Scale Factor Figure 2** The scale factor option allows you to scale figure 1 by a factor of 1, 2, or 3. All measurements present on the figure update accordingly as the scale factor is changed.
- 11. Figure 2 Options Menu** You can adjust the measurements of the edges, sides, radius, or height of figure 2 using the options menu. Each of the measurements in the options menu can be adjusted between 1 and 10.
- 11. Prism Menu Button** In the prism menu, you can choose a prism to compare or view from the following: Equilateral triangular prism, rectangular prism, pentagonal prism, hexagonal prism, and octagonal prism.
- 12. Pyramid Menu Button** In the pyramid menu, you can choose a pyramid to compare or view from the following: Equilateral triangular pyramid, rectangular pyramid, square pyramid, pentagonal pyramid, hexagonal pyramid, and octagonal pyramid.
- 13. Cylinder Button** Selecting the cylinder button will add a cylinder to the figure 1 or figure 2 areas.
- 14. Cone Button** Selecting the cone button will add a cone to the figure 1 or figure 2 areas.
- 15. Sphere Button** Selecting the sphere button will add a sphere to the figure 1 or figure 2 areas.

(continued on the next page)

3D Geometry

Compare Figures Mode – Part 2

Compare Figures

Reset All

$V = 9.00 \text{ units}^3$
 $B = 9.00 \text{ units}^2$

$S.A. = 29.12 \text{ units}^2$
 $L.A. = 20.12 \text{ units}^2$

Scale Factor: < 1 >

$V = 46.45 \text{ units}^3$
 $B = 15.48 \text{ units}^2$

$S.A. = 75.97 \text{ units}^2$
 $L.A. = 45.00 \text{ units}^2$

Scale Factor: < 1 >

16

17

18

19

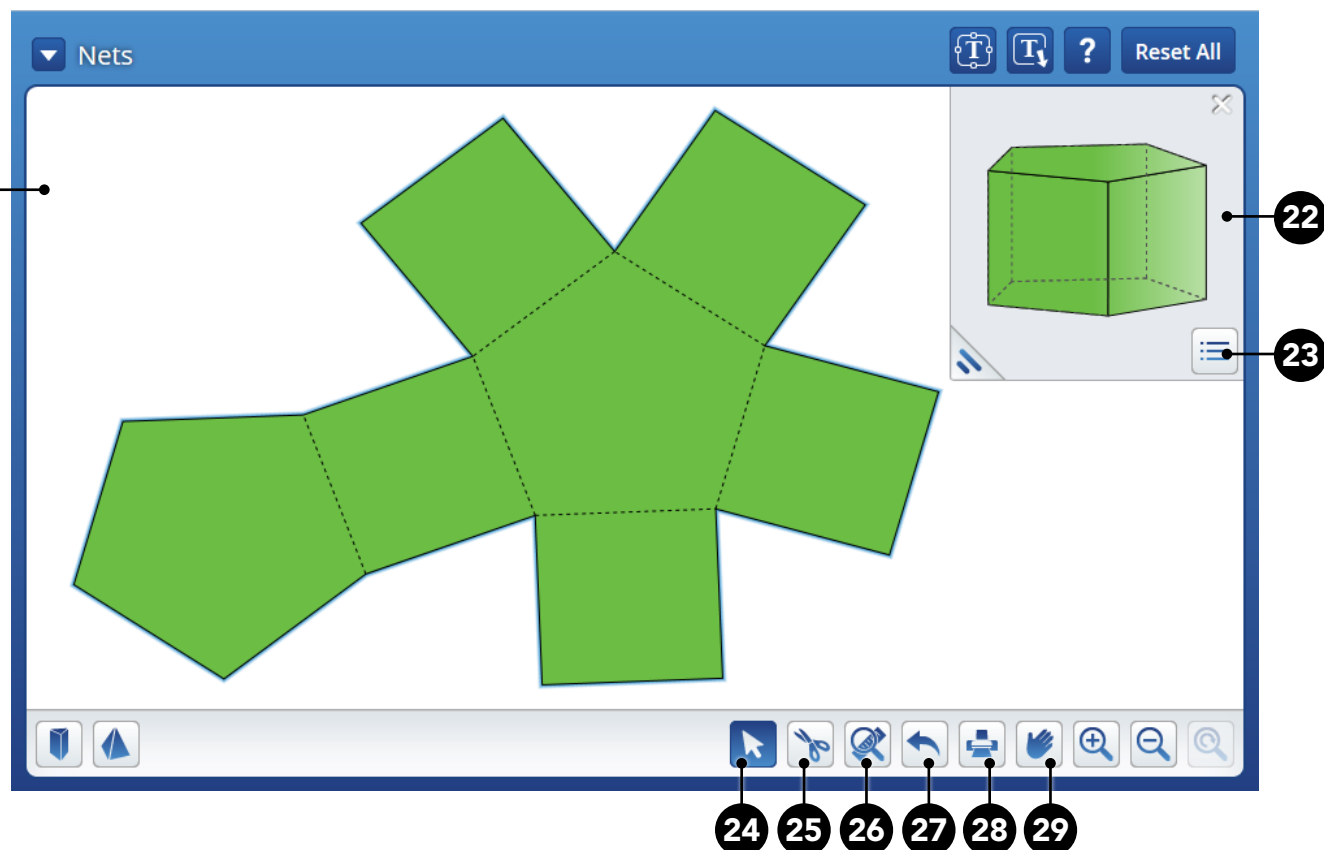
20

- 16. Eraser** Using the eraser, you can select figure 1 or figure 2 to remove them, and add new figures.
- 17. Measurement Button** Selecting the measurement button, you can view the measurements of each figure in table form, or in the figure areas. Among the measurements you can view depending on the figure are: Base edge, length, width, height, radius, slant height, base area, lateral area, surface area, volume.
- 18. Zoom In Button** Using the zoom-in button, you can zoom in to enlarge the relative size of the figures. When changing the level of zoom, the measurements of the figures do not change.
- 19. Zoom-Out Button** Using the zoom-out button, you can zoom out to shrink the relative size of the figures. When changing the level of zoom, the measurements of the figures do not change.
- 20. Reset-Zoom Button** Using the reset zoom button, you can restore the default zoom level in the tool.

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3D Geometry

Nets Mode –Part 1



- 21. Activity Area** After you select a figure to view its net, the 2-D figures that comprise the figure's net will appear in the activity area, unassembled
- 22. 3-D Figure Thumbnail Area** After you have selected a figure to view its net, the thumbnail will show the 3-D rendering of the figure you selected. You can resize the thumbnail area by dragging the lower left corner of the area. To remove the net in the activity area, you can press the "x" in the upper right corner of the thumbnail area.
- 23. 3-D Figure Options Menu** You can adjust the measurements of the edges, sides, or height of the figure in the activity area. Each of the measurements in the options menu can be adjusted between 1 and 10. The corresponding pieces of the net will update as you adjust the measurements.
- 24. Pointer** Use the pointer to manipulate the pieces of the net in the activity area. You can drag the pieces of net around the activity area, and if two sides are of the same length and orientation, you can snap them together using the pointer by dragging them next to each other. You can rotate an unsnapped figure by selecting on of its corners and dragging it.
- 25. Cut Net Button** Once you have snapped together two or more pieces of a net, you can use the cut net button to detach the pieces. Connected parts of the net appear with a dashed line along their common edge.

(continued on the next page)

3D Geometry

- 26. Measurement Button** Selecting the measurement button, you can view the measurements of each piece of the net by select the piece you want to measure. The measurements of the edges, length and width can be seen when you select the net piece to measure.
- 27. Undo Button** You can use the undo button to remove the most recent change(s) to the tool. Only items in the activity area are affected using the undo button.
- 28. Print Button** Once all pieces of the net are assembled, regardless of configuration, the print button becomes active. Selecting the print button allows you to print the net of the figure currently on screen. The printed net will only show the area immediately visible in the activity area.
- 29. Pan Button** Using the pan button, you can change the area of the graph you are viewing within the current zoom level by dragging anywhere in the activity area except the net itself.