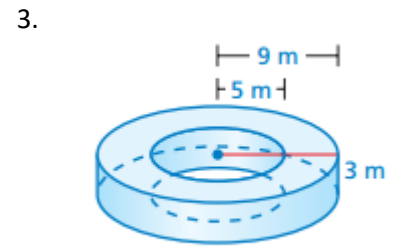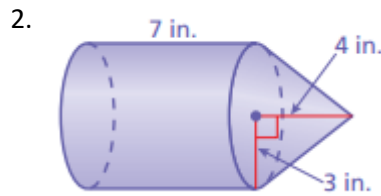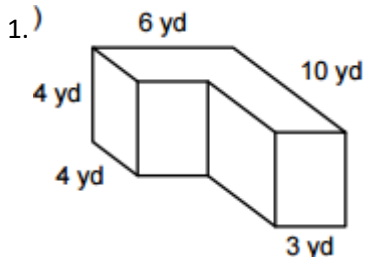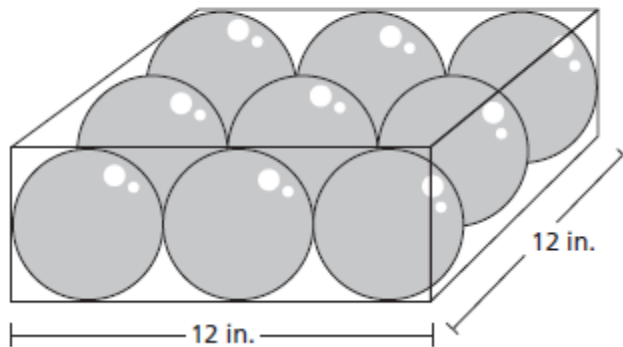# Review for Volume, Cross sections, and 2D to 3D

You will need a separate sheet of paper to complete the following problems.

Find the volume of the below composite figures.

1.)

6 yd
10 yd
4 yd
4 yd
3 yd

2.

7 in.
4 in.
3 in.

3.

9 m
5 m
3 m

4. A box contains 9 identical glass spheres that are used to make snow globes. The sphere are tightly packed, as shown below.

12 in.
12 in.

a. What is the total volume, in cubic inches, of all 9 spheres? Round your answer to the nearest tenth of a cubic inch.

b. The left over space will be filled with packaging. If it costs $0.06 per cubic inch of packaging home much would a company have to spend on 8 packages?

5. Marge has a cylindrical tin of popcorn that is 18 in. tall and has a radius of 4 in. She wants to use the tin for something else and needs to empty the popcorn into a box. The box is 8 in. long, 8 in. wide and 14 in. tall. Will the popcorn fit in the box? Explain.

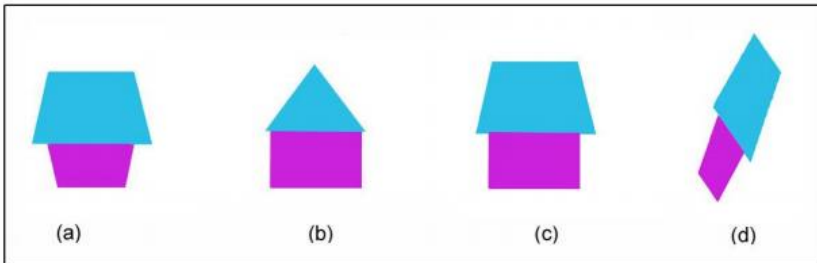Draw the indicated cross section of the below figures.

6.

7.

8.

(a)   (b)   (c)   (d)
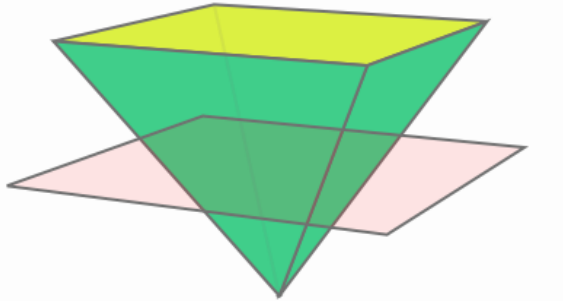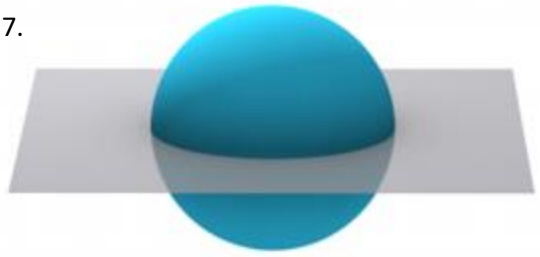
9. Describe in detail the solid formed by rotating a 2 x 2 rectangle with vertices (3, 0), (5, 0), (3, 2) and (5, 2) about the x-axis. Include the dimensions of the solid in your description.

10. Describe in detail the solid formed by rotating a 2 x 2 rectangle with vertices (3, 0), (5, 0), (3, 2) and (5, 2) about the y-axis. Include the dimensions of the solid in your description.

11. a. Describe in detail the solid formed by rotating a right triangle with vertices at (0, 0), (4, 0), and (0, 4) about the vertical axis. Include the dimensions of the solid in your description.
    b. Would these dimensions change if you rotated it around the horizontal axis? Why or why not?

12. Where does pi come from?

13. Explain where the area of a circle came from. Volume of a cone. Volume for a cylinder. Volume from a pyramid.