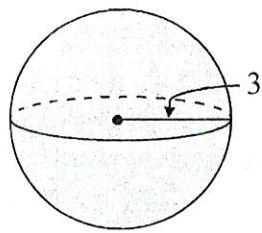
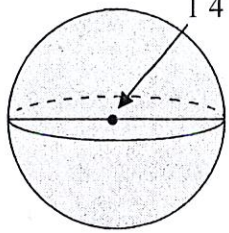
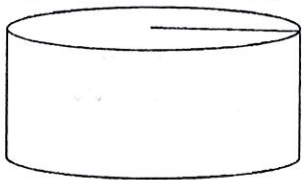


Circles Mini-Test: Volume of Circular Solids, Pyramids & composite figures

Find the volume of each solid.  $V = \frac{4}{3}\pi r^3$

<p>1.</p>  $V = \frac{4}{3}\pi (3)^3$ $= \frac{108\pi}{3}$ $= 36\pi$	<p>2.</p>  $V = \frac{4}{3}\pi (7)^3$ $= \frac{1372\pi}{3}$
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3.

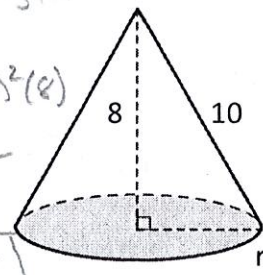


$$V = \pi r^2 h$$

$$= \pi (8)^2 (6)$$

$$= 384\pi \text{ cm}^3$$

4.



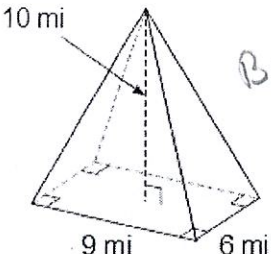
$$V = \frac{1}{3}\pi r^2 h$$

$$= \frac{1}{3}\pi (6)^2 (8)$$

$$= \frac{288\pi}{3}$$

$$= 96\pi$$

5.



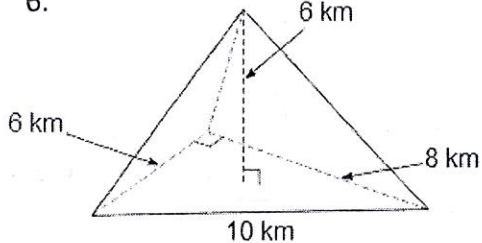
$$V = \frac{1}{3}Bh$$

$$B = 6(9) = 54$$

$$V = \frac{1}{3}(54)(10)$$

$$= 180 \text{ m}^3$$

6.




$$B = \frac{1}{2}(6)(8) = 24$$

$$V = \frac{1}{3}(24)(6)$$

$$= 48 \text{ km}^3$$

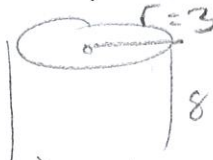
7. Sand pouring onto the ground forms a cone. If the diameter of the cone is 8in, and the height is 4in, what's the volume of sand in the pile?



$$V = \frac{1}{3}\pi (4)^2 (4)$$

$$= \frac{64\pi}{3} \approx 67.02 \text{ in}^3$$

8. Find the volume of a paint can that is 8in tall and has a diameter of 6in.



$$V = \pi (3)^2 (8)$$

$$= 72\pi$$

$$\approx 226.19 \text{ in}^3$$

A certain cylinder has a density of .789g/cm<sup>3</sup> and a mass of 245g. If the radius of the cylinder is 8cm, what's the height? Round to the nearest hundredth.

$$d = \frac{m}{V} \quad .789 = \frac{245}{V}$$

$$V = \frac{245}{.789} \approx 310.52$$

$$V = \pi r^2 h$$

$$310.52 = \pi (8)^2 h$$

$$\frac{310.52}{201.06} = \frac{201.06 h}{201.06}$$

$$1.54 \approx h \text{ cm}$$

10. A sphere with a radius of 18cm has a density of .326g/cm<sup>3</sup>. What's its mass to the nearest hundredth?

$$V = \frac{4}{3}\pi (18)^3 \approx 24429.02$$

$$.326 = \frac{m}{24429.02} \quad m = 7963.86g$$

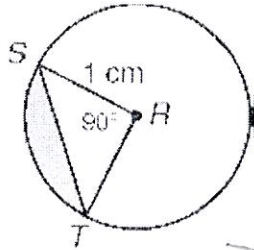
11. A 14ft X 12ft garden has a population of 238 earthworms. What's the population density of the garden?

$$A = 14 \times 12 = 168 \text{ ft}^2$$

$$d = \frac{238}{168} \approx 1.42 \text{ worm/ft}^2$$

Find the area of the segment of the circle.:

12. Give exact answer

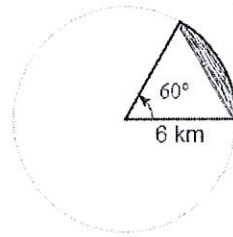


$$A_{\text{sect}} = \pi r^2 \left(\frac{\theta}{360}\right) = \pi (1)^2 \left(\frac{90}{360}\right) = \frac{\pi}{4}$$

$$A_{\Delta} = \frac{1}{2} \cdot 1 \cdot 1 = \frac{1}{2}$$

$$A_{\text{segment}} = \frac{\pi}{4} - \frac{1}{2}$$

13. Round to the nearest hundredth



tenth!

$$A_{\text{sect}} = \pi (6)^2 \left(\frac{60}{360}\right) = 6\pi \approx 18.8$$

$$A_{\Delta} = \frac{1}{2} (6)(6) \sin(60) \approx 15.6$$

$$A_{\text{segment}} = 18.8 - 15.6 \approx 3.2$$

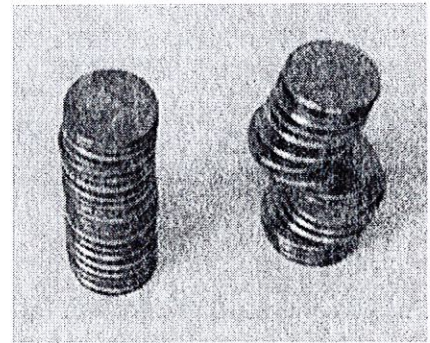
14. Sally has a ball with a radius of 3in, and another with a radius of 9in. How many times more volume does the larger ball have than the smaller one?

$$V_{\text{small}} = 36\pi \quad V_{\text{big}} = 972\pi$$

Big ball has 27 times more volume than small ball.

15. Fill in the blanks to reflect what Cavalieri's principle says about the image below.

"The stacks of coins have the same volume because the cross sections are have the same area and they have the same height."



16. The cross section of a sphere is always a Circle.
17. The cross section of a cone taken parallel to its base is a circle.
18. The cross section of a cylinder taken perpendicular to the base is a Rectangle.