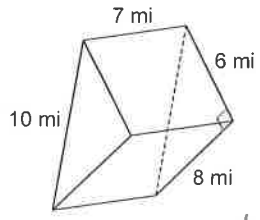
Geometry Name Key

WS 11.5 - 11.8 PC Review

Find the volume of each figure. Round your answers to the nearest hundredth, if necessary.

1)

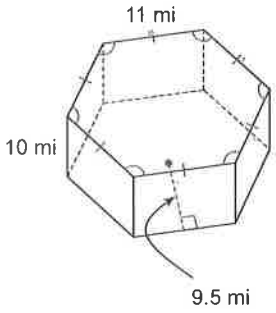


$B = \frac{1}{2}bh = \frac{1}{2}(8)(6) = 24$

$V = 24(7)$

$V = 168 \text{ mi}^3$

2)



$B = \frac{1}{2}aP$

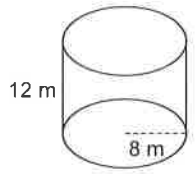
$= \frac{1}{2}(9.5)(66)$

$= 313.5$

$V = 313.5(10)$

$V = 3135 \text{ mi}^3$

3)



$V = \pi r^2 h$

$= \pi(8)^2(12)$

$V = 2412.7 \text{ m}^3$

4) A square prism measuring 4 km along each edge of the base and 8 km tall.

$B = s^2 = 4^2 = 16$

$V = 16(8)$

$V = 128 \text{ km}^3$

5) A sphere with a radius of 7 km.

$V = \frac{4}{3}\pi r^3$

$= \frac{4}{3}\pi(7)^3$

$V = \frac{1372}{3}\pi \quad 457.3\pi = 1436.8 \text{ km}^3$

Find the surface area of each figure. Round your answers to the nearest hundredth, if necessary. Leave your answers in terms of π for answers that contain π.

6) A sphere with a diameter of 22.4 in.

$S = 4\pi r^2$

$= 4\pi(11.2)^2$

$S = 501.8\pi \text{ in}^2$

7) A cone with diameter 12 ft and a slant height of 13.4 ft.

$S = \pi r^2 + \pi r l$

$= \pi(6)^2 + \pi(6)(13.4)$

$S = 116.4\pi \text{ ft}^2$

8) The volume of a square pyramid is 60 cubic inches and the height is 15 inches. Find the side length of the square base.

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

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

$60 = \frac{1}{3}s^2(15)$

$60 = 5s^2$

$12 = s^2$

$\sqrt{12} = s$

$\sqrt{12}$

$4\ 3$

22

$s = 2\sqrt{3}$ in

9) The volume of a cone is 100π cubic centimeters. If the height of the cone is 12 cm, find the radius.

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

$100\pi = \frac{1}{3}\pi r^2(12)$

$100 = 4r^2$

$\sqrt{25} = \sqrt{r^2}$

$r = 5$ cm

10) The surface area of a sphere is 1296π in^2. Find the volume of the sphere.

$S = 4\pi r^2$

$\frac{1296\pi}{4\pi} = \frac{4\pi r^2}{4\pi}$

$\sqrt{324} = \sqrt{r^2}$

$r = 18$

$V = \frac{4}{3}\pi r^3$

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

$V = 7776\pi$ in^3

11) The volume of a prism is 80 cm^3. If the dimensions are tripled, find the volume of the new prism.

$3^3 = 27$

$80(27) =$ 2160 cm^3

12) A cube with a side length of 6 cm has a cylinder with a radius of 2 cm removed from the center. Find the volume of the composite figure.

$V_{cube} = 6 \cdot 6 \cdot 6$

$= 216$

$V_{cylinder} = \pi r^2 h$

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

$= 75.4$

$216 - 75.4 =$ 140.6 cm^3