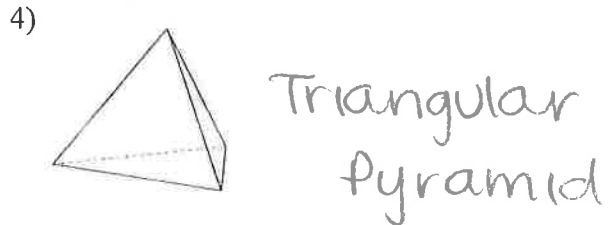
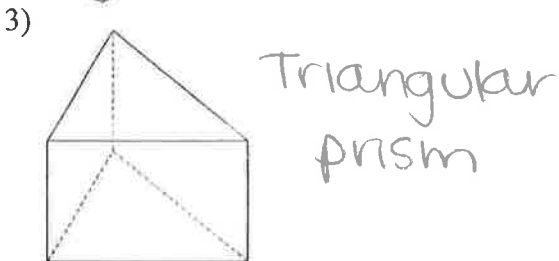
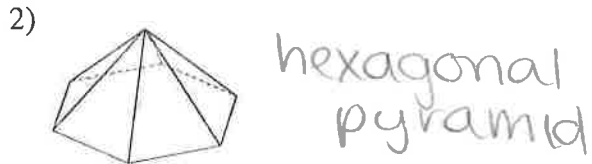
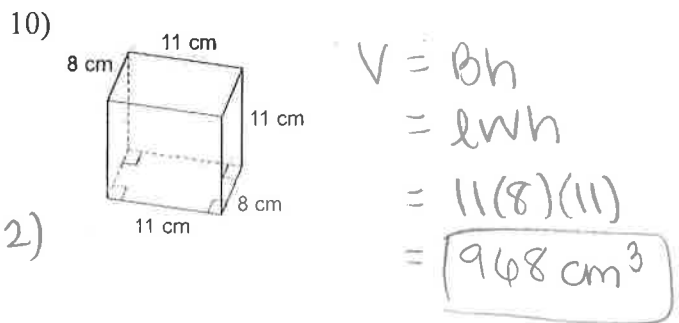
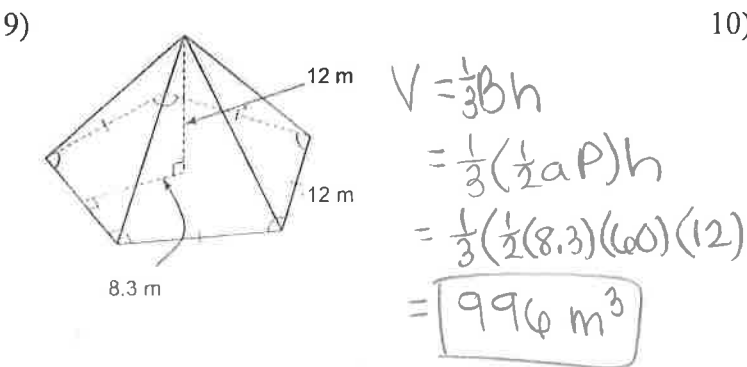
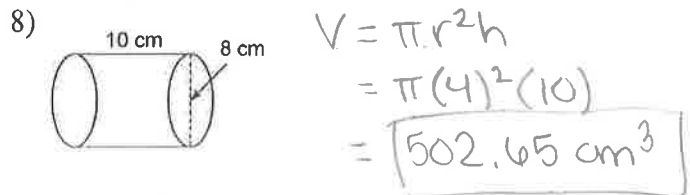
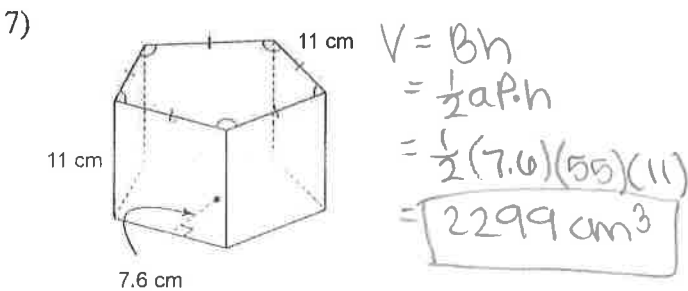
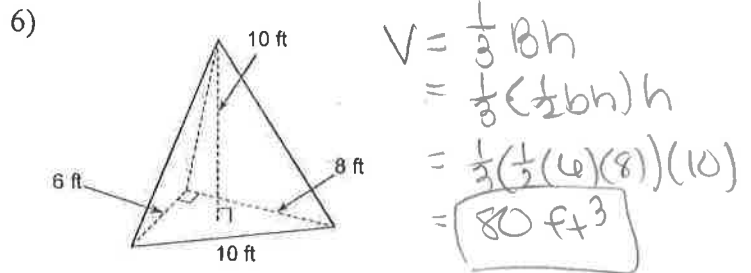
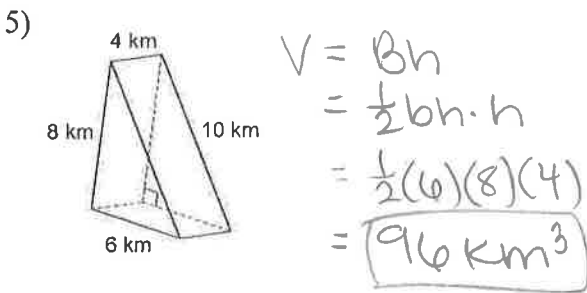


Chapter 11 Test Review

Name each figure.



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



Find the surface area AND volume of each figure. Leave your answers in terms of pi.

11) $S = \pi r^2 + \pi r l$
 $= \pi(8)^2 + \pi(8)(\sqrt{320})$
 $= 207.11 \pi \text{ mi}^2$
 $V = \frac{1}{3} \pi r^2 h$
 $= \frac{1}{3} \pi (8)^2 (17.89)$
 $= 1024 \frac{\pi}{3} \text{ mi}^3$

12) $S = 4\pi r^2$
 $= 4\pi(2)^2$
 $= 16\pi \text{ cm}^2$
 $V = \frac{4}{3} \pi r^3$
 $= \frac{4}{3} \pi (2)^3$
 $= \frac{32}{3} \pi \text{ cm}^3$

13) $S = \pi(5)^2 + \pi(5)(\sqrt{146})$
 $= 85.42 \pi \text{ in}^2$
 $V = \frac{1}{3} \pi r^2 h$
 $= \frac{1}{3} \pi (5)^2 (11)$
 $= 275 \frac{\pi}{3} \text{ in}^3$

14) $S = 4\pi r^2$
 $= 4\pi(9)^2$
 $= 324 \pi \text{ in}^2$
 $V = \frac{4}{3} \pi r^3$
 $= \frac{4}{3} \pi (9)^3$
 $= 972 \pi \text{ in}^3$

Find the area of each sector. Leave your answers in terms of pi.

15) $\frac{225}{360} = \frac{x}{\pi(17)^2}$
 $360x = 65,025\pi$
 $x = 180.625\pi \text{ cm}^2$

16) $\frac{240}{360} = \frac{x}{\pi(10)^2}$
 $360x = 24,000\pi$
 $x = 66.67\pi \text{ in}^2$

Find the length of each arc. Leave your answers in terms of pi.

17) $\frac{150}{360} = \frac{x}{2\pi(15)}$
 $360x = 4500\pi$
 $x = 12.5\pi \text{ m}$

18) $\frac{135}{360} = \frac{x}{2\pi(12)}$
 $360x = 3240\pi$
 $x = 9\pi \text{ in}$

Convert each measure from degrees to radians.

19) $270^\circ \cdot \frac{\pi}{180} = \frac{270\pi}{180} = \frac{3\pi}{2}$

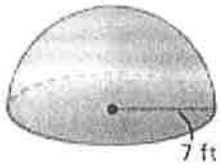
20) $45^\circ \cdot \frac{\pi}{180} = \frac{45\pi}{180} = \frac{\pi}{4}$

Convert each measure from radians to degrees.

21) $\frac{\pi}{3} \cdot \frac{180}{\pi} = \frac{180}{3} = 60^\circ$

22) $\frac{2\pi}{9} \cdot \frac{180}{\pi} = \frac{360}{9} = 40^\circ$

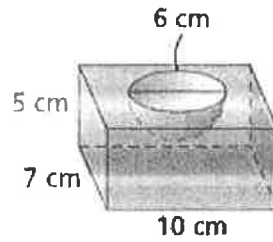
23. Find the volume of each figure.



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

$$= \frac{484}{3} \pi \text{ ft}^3$$

or 718.38 ft^3



$$V = lwh$$

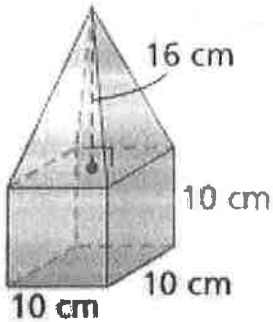
$$= 7(10)(5)$$

$$= 350 \text{ cm}^3$$

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

$$= 56.55$$

$$350 - 56.55 = 293.45 \text{ cm}^3$$



$$V = 10(10)(10)$$

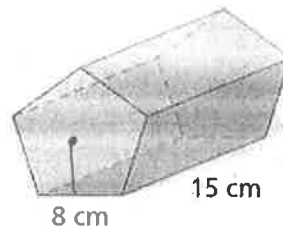
$$= 1000$$

$$V = \frac{1}{3} (10 \cdot 10)(16)$$

$$= 533.33$$

$$1000 + 533.33 =$$

$$1533.33 \text{ cm}^3$$



$$P = 8(5) = 40$$

$$V = Bh$$

$$= \left(\frac{1}{2} aP \right) h$$

$$= \frac{1}{2} (5.51)(40)(15)$$

$$= 1651.66 \text{ cm}^3$$

$$\frac{360}{5} = 72 \div 2 = 36$$

$$\tan 36^\circ = \frac{4}{a}$$

$$a = \frac{4}{\tan 36^\circ} = 5.51$$

24. A cylindrical juice container has the dimensions shown. About how many cups of juice does this container hold? (Hint: 1 cup $\approx 1.44 \text{ in}^3$)

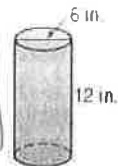
$$V = \pi r^2 h$$

$$= \pi (3)^2 (12)$$

$$= 339.29$$

$$\frac{339.29}{1.44} = 235.62$$

about
236 cups



25. The radius of a cone is 9 cm. The volume of the cone is $324\pi \text{ cm}^3$. What is the height of the cone?

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

$$324\pi = \frac{1}{3} \pi (9)^2 h$$

$$\frac{324\pi}{27\pi} = \frac{27\pi h}{27\pi}$$

$$h = 12 \text{ cm}$$

26. The surface area of a rectangular prism is multiplied by 64. What has been done to the dimensions of the figure?

$$\sqrt{64} = 8 \quad \text{mult. by } 8$$

27. A sphere has a radius of 6 cm. A right cylinder, having the same radius, has the same volume. Find the height of the cylinder.

$$\begin{aligned} V &= \frac{4}{3}\pi r^3 \\ &= \frac{4}{3}\pi(6)^3 \\ &= 288\pi \end{aligned}$$

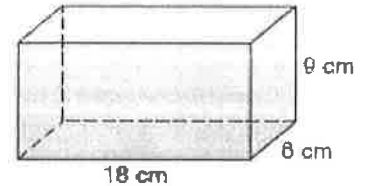
$$\begin{aligned} V &= \pi r^2 h \\ 288\pi &= \pi(6)^2 h \\ \frac{288\pi}{36\pi} &= \frac{36\pi h}{36\pi} \\ 8 &= h \end{aligned}$$

$$h = 8 \text{ cm}$$

28. How many cubes with 3-inch sides can be placed inside the box?

$$\begin{aligned} V &= 18(6)(9) \\ &= 972 \text{ in}^3 \end{aligned}$$

$$\frac{972}{27} = 36 \text{ cubes}$$

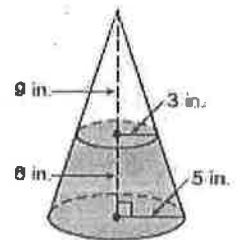


$$3 \cdot 3 \cdot 3 = 27$$

29. Find the volume of the shaded region. Leave your answer in terms of pi.

$$\begin{aligned} V &= \frac{1}{3}\pi r^2 h \\ &= \frac{1}{3}\pi(5)^2(15) \\ &= 125\pi \end{aligned}$$

$$\begin{aligned} V &= \frac{1}{3}\pi(3)^2(9) \\ &= 27\pi \end{aligned}$$

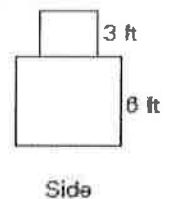
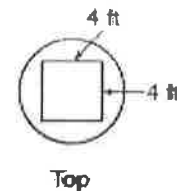


$$125\pi - 27\pi = 98\pi \text{ in}^3$$

30. What is the volume of the composite figure with the dimensions shown in these three views? Round to the nearest tenth.

$$\begin{aligned} V &= \pi r^2 h \\ &= \pi(3.5)^2(6) \\ &= 230.9 \end{aligned}$$

$$\begin{aligned} V &= Bh \\ &= 4(4)(3) \\ &= 48 \end{aligned}$$



$$230.9 + 48 = 278.9 \text{ ft}^3$$

31. Given that 1 fluid oz is about 1.805 in³, approximately how many fluid ounces of water can a cylinder with radius of 2 inches and height of 3 inches hold?

$$\begin{aligned} V &= \pi r^2 h \\ &= \pi(2)^2(3) \\ &= 37.7 \end{aligned}$$

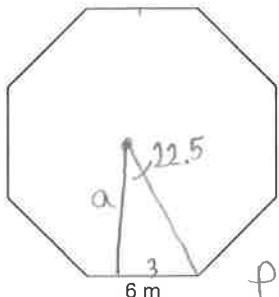
$$\frac{37.7}{1.805} = 20.89$$

$$\text{about } 21 \text{ oz}$$

Test Review Unit 11 - Area of Polygons

Find the area of each figure. Round your answer to the nearest tenth.

1)



$$\frac{360}{8} = 45 \div 2 = 22.5$$

$$\tan 22.5 = \frac{3}{a}$$

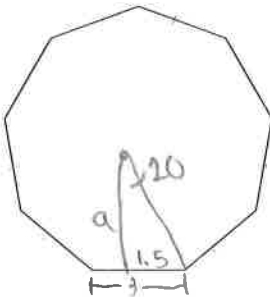
$$a = \frac{3}{\tan 22.5} = 7.2$$

$$P = 6(8) = 48$$

$$A = \frac{1}{2}(7.2)(48)$$

$A = 173.8 \text{ m}^2$

2)



$$\frac{360}{8} = 45 \div 2 = 22.5$$

$$\frac{27}{8} = 3.375$$

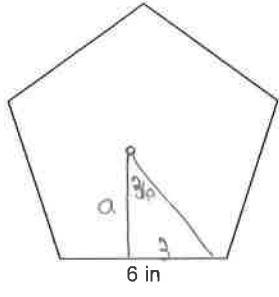
$$\tan 20 = \frac{1.5}{a}$$

$$a = \frac{1.5}{\tan 20} = 4.1$$

$$A = \frac{1}{2}(4.1)(27)$$

$A = 55.6 \text{ mi}^2$

3)



$$\frac{360}{5} = 72 \div 2 = 36$$

$$\tan 36 = \frac{3}{a}$$


$$a = \frac{3}{\tan 36} = 4.1$$

$$P = 6(5) = 30$$

$$A = \frac{1}{2}(4.1)(30)$$

$A = 61.9 \text{ in}^2$

4) An equilateral triangle with a perimeter of 24 ft.



$$\frac{360}{3} = 120 \div 2 = 60$$

$$\frac{24}{3} = 8$$


$$\tan 60 = \frac{4}{a}$$

$$a = \frac{4}{\tan 60} = 2.3$$

$$A = \frac{1}{2}(2.3)(24)$$

$A = 27.7 \text{ ft}^2$

5) A regular 9-gon with a perimeter of 54 km.



$$\frac{360}{9} = 40 \div 2 = 20$$

$$\frac{54}{9} = 6$$


$$\tan 20 = \frac{3}{a}$$

$$a = \frac{3}{\tan 20} = 8.2$$

$$A = \frac{1}{2}(8.2)(54)$$

$A = 222.5 \text{ km}^2$

6) A regular hexagon measuring 6 km on each side.



$$\frac{360}{6} = 60 \div 2 = 30$$

$$P = 6(6) = 36$$

$$\tan 30 = \frac{3}{a}$$

$$a = \frac{3}{\tan 30} = 5.2$$

$$A = \frac{1}{2}(5.2)(36)$$

$A = 93.5 \text{ km}^2$

