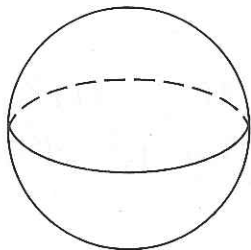


Leave your answers in simplified radical form and/or terms of π .

1) Circumference = 12π in.



$$C = 2\pi r$$

$$12\pi = 2\pi r$$

$$r = 6$$

$$TA = 4\pi r^2$$

$$= 4\pi(6)^2$$

$$= 4\pi(36) = 144\pi$$

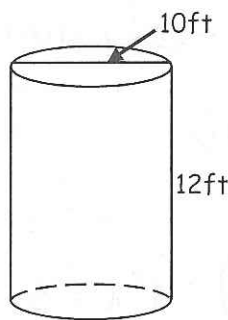
$$V = \frac{4}{3}\pi r^3$$

$$\frac{4}{3}\pi(6)^3 = \frac{4}{3}\pi(216)$$

Total Area = 144π in²

Volume = 288π in³

2)



$$LA = ph = (2\pi r)h$$

$$= 2\pi(5) \cdot 12 = 120\pi$$

$$TA = LA + 2B = LA + 2(\pi r^2)$$

$$= 120\pi + 2(\pi \cdot 5^2) = 170\pi$$

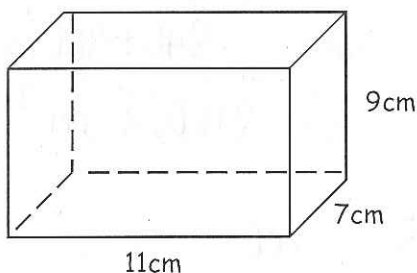
$$V = Bh = (\pi r^2)h = (\pi \cdot 5^2) \cdot 12$$

Lateral Area = 120π ft.²

Total Area = 170π ft.²

Volume = 300π ft.³

3)



$$LA = ph = (11+7+11+7) \cdot 9$$

$$= (36) \cdot 9 = 324$$

$$TA = LA + 2B$$

$$= 324 + 2(11 \cdot 7) = 478$$

$$V = Bh = (11 \cdot 7) \cdot 9 = 693$$

Lateral Area = 324 cm²

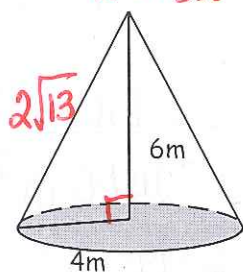
Total Area = 478 cm²

Volume = 693 cm³

4)

$$4^2 + 6^2 = x^2$$

$$x^2 = 52$$



$$LA = \frac{1}{2}pl = \frac{1}{2}(2\pi r)l = \pi \cdot 4 \cdot 2\sqrt{13} = 8\pi\sqrt{13}$$

$$TA = LA + B = LA + \pi r^2 =$$

$$8\pi\sqrt{13} + \pi \cdot 4^2 = 8\pi\sqrt{13} + 16\pi$$

$$V = \frac{1}{3}Bh = \frac{1}{3}(\pi r^2) \cdot h$$

$$= \frac{1}{3}\pi \cdot 4^2 \cdot 6 = 32\pi$$

Lateral Area = $8\pi\sqrt{13}$ m²

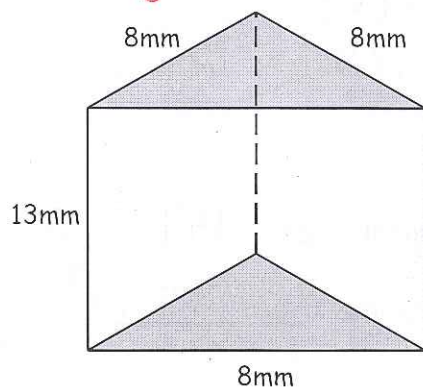
Total Area = $8\pi\sqrt{13} + 16\pi$ m²

Volume = 32π m³

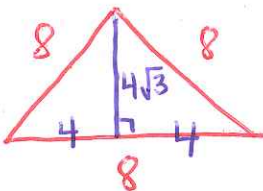
Geometry/Trig
Unit 10 Review Packet

Leave your answers in simplified radical form and/or terms of π .

5) **Triangular Prism**



$$LA = ph = (8 + 8 + 8) \cdot 13 = (24) \cdot 13 = 312$$



$$A = \frac{1}{2}bh = \frac{1}{2}(8)(4\sqrt{3}) = 16\sqrt{3}$$

Area of the Base!

$$TA = LA + 2B$$

$$312 + 2(16\sqrt{3})$$

Lateral Area = 312 mm²

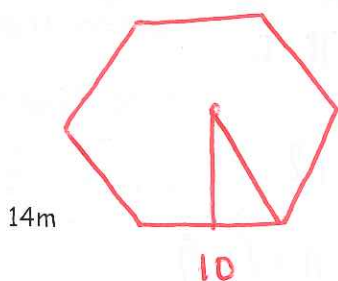
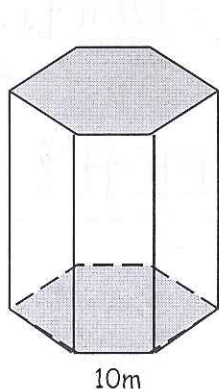
Total Area = 312 + 32\sqrt{3} mm²

$$V = Bh$$

$$= (16\sqrt{3}) \cdot 13 = 208\sqrt{3}$$

Volume = 208\sqrt{3} mm³

6) The base is a regular hexagon.



$$LA = ph = (10 \cdot 6) \cdot 14 = 840$$

$$A = \frac{1}{2}ap$$

$$= \frac{1}{2}(5\sqrt{3})(60) = 150\sqrt{3}$$

Area of the Base!

$$TA = LA + 2B = 840 + 2(150\sqrt{3})$$

Lateral Area = 840 m²

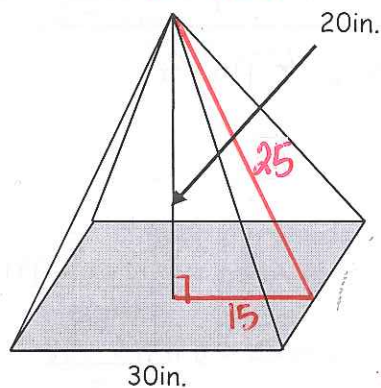
Total Area = 840 + 300\sqrt{3} m²

$$V = Bh = (150\sqrt{3}) \cdot 14 = 2100\sqrt{3}$$

Volume = 2100\sqrt{3} m³

$$15^2 + 20^2 = x^2$$

$$x^2 = 625$$



$$LA = \frac{1}{2}pl = \frac{1}{2}(30 \cdot 4) \cdot 25 = 1500$$

$$TA = LA + B = 1500 + (30 \cdot 30) = 2400$$

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

$$= \frac{1}{3}(30 \cdot 30) \cdot 20$$

$$= 6,000 \text{ in}^3$$

Lateral Area = 1500 in²

Total Area = 2400 in²

Volume = 6,000 in³

Geometry/Trig
Unit 10 Review Packet

Solve each word problem. Leave your answers in the specified form.

- 8) A cylinder has a volume of 1728π . If the height = radius, find the total area. Leave your answer in terms of π .

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

$$1728\pi = \pi r^2 \cdot h$$

$$1728\pi = \pi r^2 \cdot r$$

$$1728\pi = \pi r^3$$

$$r = 12$$

$$TA = 2\pi r h + 2\pi r^2$$

$$= 2\pi \cdot 12 \cdot 12 + 2\pi (12)^2$$

$$TA = 576\pi \text{ u}^2$$

- 9) Popcorn is sold in a cardboard cylinder with radius 8cm and height 6cm. If the same amount of popcorn is to be sold in a cone with radius 6cm, what should be the height of the cone?

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

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

$$= 384\pi$$

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

$$384\pi = \frac{1}{3} \cdot \pi \cdot 6^2 \cdot h$$

$$384\pi = 12\pi \cdot h$$

$$h = 32 \text{ cm}$$

- 10) Wrapping paper is to be glued to the cylinder to the right, so that the cylinder is completely covered, including the bases. Find the amount of paper needed, rounded to the nearest square inch. Use $\pi = 3.14$.

$$TA = 2\pi r h + 2\pi r^2$$

$$= 2\pi (6)3 + 2\pi (6)^2$$

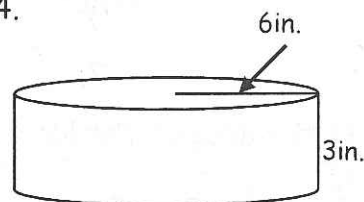
$$= 36\pi + 72\pi$$

$$= 108\pi$$

$$108(3.14)$$

$$= 339.12$$

$$339 \text{ in}^2$$



- 11) A spherical fishbowl has diameter 24cm. To fill the fishbowl three-fourths full, about how many liters of water will you need, assuming $1000\text{cm}^3 = 1\text{L}$. Use $\pi = 3.14$ and round to the nearest tenth.

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

$$= \frac{4}{3} (3.14) (12)^3$$

$$= 7234.6$$

$$7234.6 \left(\frac{3}{4}\right) = 5425.95 \rightarrow 5426 \text{ cm}^3$$

$$\frac{5426}{1000} = 5.4 \text{ Liters}$$

- 12) A water storage tank consists of a cylinder capped with a hemisphere. Find the volume of the tank, if it was completely filled. Use $\pi = 3.14$.

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

$$= \pi (15)^2 \cdot 50$$

$$= 11250\pi$$

$$= 35,325$$

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

$$= \frac{4}{3} \pi (15)^3$$

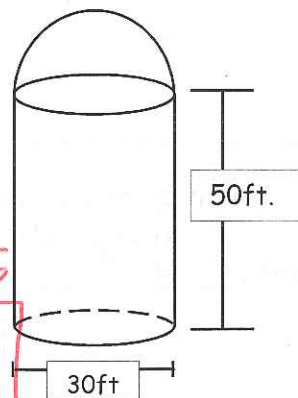
$$= \frac{4500\pi}{2}$$

$$V = 7,065$$

Total Volume =

$$35325 + 7065$$

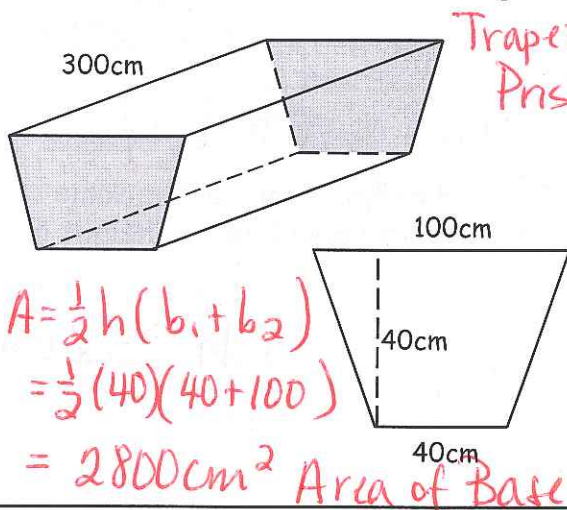
$$42390 \text{ ft}^3$$



Geometry/Trig
Unit 10 Review Packet

Solve each word problem. Leave your answers in the specified form.

- 13) Below is a drinking trough for horses. Find the volume of the trough. Then, determine how much water will fill the trough if $1\text{cm}^3 = 0.001\text{L}$.



$$V = Bh$$

$$= (2800) \cdot 300$$

$$= 840,000\text{cm}^3$$

$$840,000 (.001) =$$

840 L

- 14) Two foam plastic balls have a scale factor 2:3.

$a:b$

- a) If the smaller ball has a radius 6cm, what is the radius of the larger ball?

$$\frac{2}{3} = \frac{6}{x} \quad x=9 \quad \text{Radius} = 9\text{cm}$$

- b) If the area of the larger ball is $36\pi\text{cm}^2$, what is the area of the smaller ball (in terms of π)?

$$\text{Ratio of areas} = a^2 : b^2$$

$$= 4 : 9$$

$$\frac{4}{9} = \frac{x}{36\pi} \quad x = 16\pi\text{cm}^2$$

- c) If the larger ball weighs 12g, how much does the smaller ball weigh, to the nearest tenth?

$$\text{Ratio of Volumes} = a^3 : b^3$$

$$= 8 : 27$$

$$\frac{8}{27} = \frac{x}{12} \quad x = 3.6\text{ grams}$$

- 15) Two similar cones have volumes 2π and 16π . Find the ratios of their:

a) Radii 1:2 b) slant heights 1:2 c) volumes 1:8

$a:b$ $a:b$ $a^3:b^3$ $2\pi:16\pi$
 $1:8$

- 16) Two similar pyramids have lateral areas 12 and 27. Find the ratios of their:

a) Heights 2:3 b) total areas 4:9 c) volumes 8:27

$a:b$ $a^2:b^2$ $a^3:b^3$

$$12:27 = 4:9$$