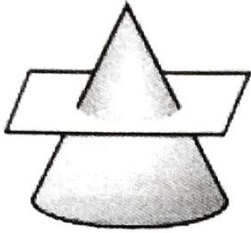
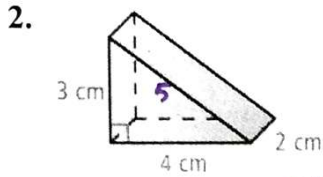


1. Describe the cross section of the figure below.



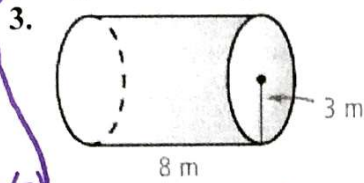
Find the surface area of each figure. Leave your answers in terms of π where applicable.



$$\frac{1}{2}(4)(3)(2) + 4(2) + 3(2) + 5(2)$$

$$12 + 8 + 6 + 10$$

$$36 \text{ cm}^2$$

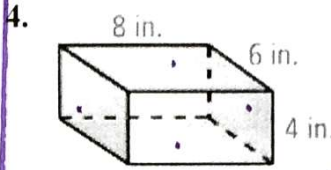


$$2\pi r^2 + 2\pi rh$$

$$2\pi(3)^2 + 2\pi(3)(8)$$

$$18\pi + 48\pi$$

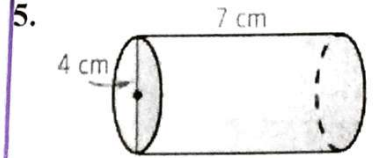
$$= 66\pi \text{ m}^2$$



$$6(4)(2) + 8(6)(2) + 8(4)(2)$$

$$48 + 96 + 64$$

$$= 208 \text{ in}^2$$



$$2\pi r^2 + 2\pi rh$$

$$2\pi(2)^2 + 2\pi(2)(7)$$

$$8\pi + 28\pi$$

$$= 36\pi \text{ cm}^2$$

6. A cylinder has a radius of 2.5 cm and a lateral area of $20\pi \text{ cm}^2$. What is the surface area of the cylinder in terms of π ?

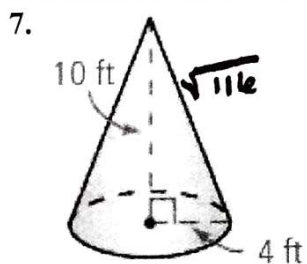
$$SA = 2\pi r^2 + LA$$

$$= 2\pi(2.5)^2 + 20\pi$$

$$= 12.5\pi + 20\pi =$$

$$= 32.5\pi \text{ cm}^2$$

Find the surface area of each figure. Round your answers to the nearest hundredth.

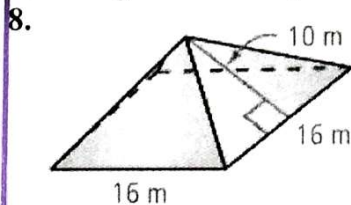


$$\pi r^2 + \pi r l$$

$$\pi(4)^2 + \pi(4)(\sqrt{116})$$

$$16\pi + 4\sqrt{116}\pi$$

$$\approx 185.61 \text{ ft}^2$$

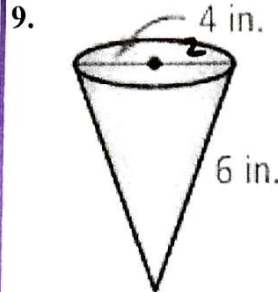


$$B + \frac{1}{2}Pl$$

$$16(16) + \frac{1}{2}(64)(10)$$

$$= 256 + 320$$

$$= 576 \text{ m}^2$$



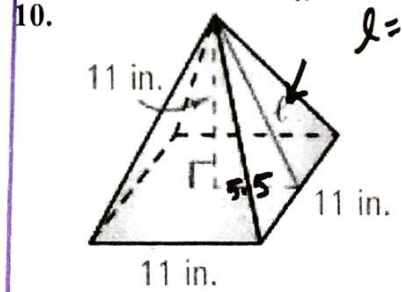
$$\pi r^2 + \pi r l$$

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

$$4\pi + 12\pi$$

$$16\pi \text{ in}^2$$

$$\approx 50.27 \text{ in}^2$$



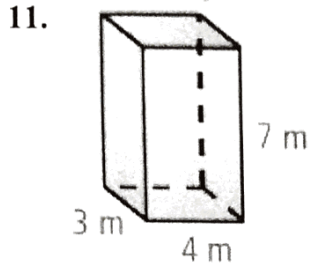
$$B + \frac{1}{2}Pl$$

$$121 + \frac{1}{2}(44)(12.3)$$

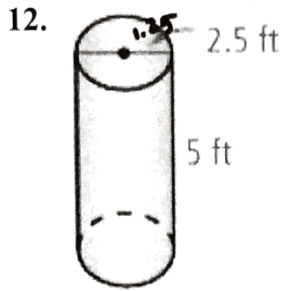
$$121 + 270.6$$

$$= 391.6 \text{ in}^2$$

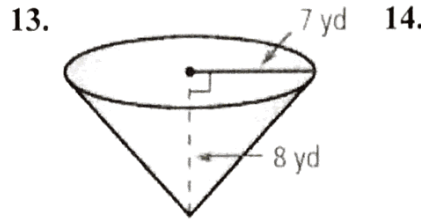
Find the volume of each figure. If necessary, round to the nearest hundredth.



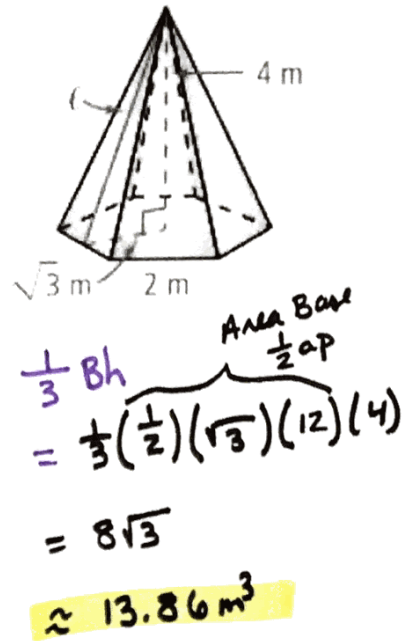
$$3(4)(7) = 84 \text{ m}^3$$



$$\begin{aligned} \pi r^2 h &= \pi (1.25)^2 (5) \\ &= 7.8125 \pi \\ &= 24.54 \text{ ft}^3 \end{aligned}$$



$$\begin{aligned} \frac{1}{3} \pi r^2 h &= \frac{1}{3} \pi (8)^2 (7) \\ &= \frac{392 \pi}{3} \\ &= 410.5 \text{ yd}^3 \end{aligned}$$



$$\begin{aligned} \frac{1}{3} B h &= \frac{1}{3} \left(\frac{1}{2} (\sqrt{3}) (2) \right) (4) \\ &= 8\sqrt{3} \\ &\approx 13.86 \text{ m}^3 \end{aligned}$$

Find the surface area and volume of a sphere with the given radius or diameter. Round your answers to the nearest hundredth.

15. $r = 5$ in.

$$\begin{aligned} SA &= 4\pi r^2 \\ &= 4\pi (5)^2 \approx 314.16 \text{ in}^2 \end{aligned}$$

16. $d = 7$ cm.

$$\begin{aligned} SA &= 4\pi r^2 \\ &= 4\pi (3.5)^2 \approx 153.94 \text{ cm}^2 \end{aligned}$$

17. $r = 0.8$ ft.

$$\begin{aligned} SA &= 4\pi r^2 \\ &= 4\pi (.8)^2 \approx 8.04 \text{ ft}^2 \end{aligned}$$

$$\begin{aligned} V &= \frac{4}{3} \pi r^3 \\ &= \frac{4}{3} \pi (5)^3 \approx 523.6 \text{ in}^3 \end{aligned}$$

$$\begin{aligned} V &= \frac{4}{3} \pi r^3 \\ &= \frac{4}{3} \pi (3.5)^3 \approx 179.59 \text{ cm}^3 \end{aligned}$$

$$\begin{aligned} V &= \frac{4}{3} \pi r^3 \\ &= \frac{4}{3} \pi (.8)^3 \approx 2.1 \text{ ft}^3 \end{aligned}$$

18. What is the volume of a sphere with a surface area of 452.39 cm^2 ? Round your answer to the nearest hundredth of a centimeter.

$$4\pi r^2 = 452.39$$

$$r^2 = 36$$

$$r = 6$$

$$\begin{aligned} V &= \frac{4}{3} \pi (6)^3 \\ &= 904.78 \text{ cm}^3 \end{aligned}$$

19. The circumference of a lacrosse ball is 8 in. Find its volume to the nearest hundredth of an inch.

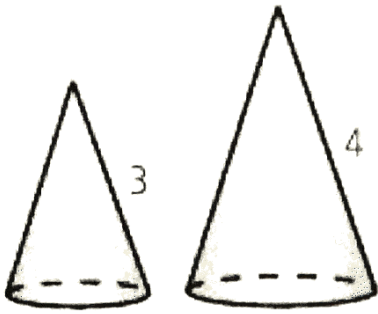
$$8 = 2\pi r$$

$$r = 1.27$$

$$\begin{aligned} V &= \frac{4}{3} \pi (1.27)^3 \\ &= 8.58 \text{ in}^3 \end{aligned}$$

For each pair of similar solids, find the ratio of the area and volume from the first figure to the second.

20.

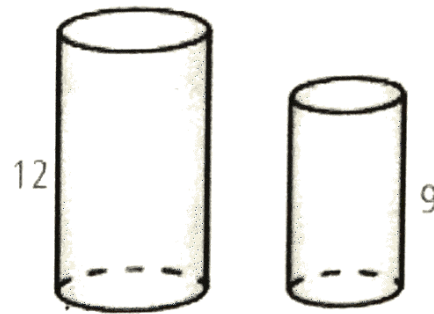


$$\frac{SF}{3/4}$$

$$\frac{A}{9/16}$$

$$\frac{V}{27/64}$$

21.



$$\frac{SF}{12/9}$$

$$\frac{A}{144/81}$$

$$\frac{V}{1728/729}$$

22. If the volume of the larger cone in question #20 is 256cm^3 , what is the volume of the smaller cone?

$$\frac{27}{64} = \frac{x}{256}$$

$$64x = 6912$$

$$x = 108\text{cm}^3$$