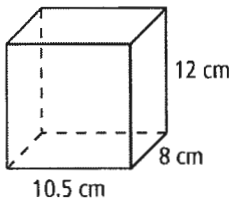
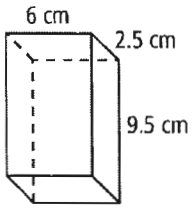
Name Answers Date

11.4 – Volume of Prisms and Cylinders

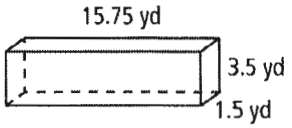
Find the volume of each rectangular prism. Round to the nearest 0.1 if necessary.

1) 

$V = 10.5 \times 8 \times 12$
$= 1008 \text{ cm}^3$

2) 

$V = 6 \times 2.5 \times 9.5$
$= 142.5 \text{ cm}^3$

3) 

$V = 1.5 \times 15.75 \times 3.5$
$\approx 82.7 \text{ yd}^3$

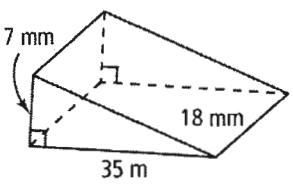
4) The base is a square, 4.5 cm on a side. The height is 5 cm.

$V = 4.5 \times 4.5 \times 5$
$= 101.25$
$\approx 101.3 \text{ cm}^3$

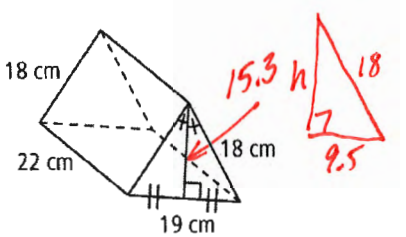
5) The base is a rectangle with length 3.2 cm and width 4 cm. The height is 10 cm.

$V = 3.2 \times 4 \times 10$
$= 128 \text{ cm}^3$

Find the volume of each triangular prism to the nearest tenth.

6) 

$V = Bh$
$= \frac{1}{2}bhh$
$= \frac{1}{2} \times 35 \times 7 \times 18$
$= 2205 \text{ mm}^3$

7) 

$V = Bh$
$= \frac{1}{2}bhh$
$= \frac{1}{2} \times 19 \times 15.3 \times 22$
$\approx 3197.7 \text{ cm}^3$

8) The base is a right triangle with a leg of 12 in. and hypotenuse of 15 in. The height of the prism is 10 in.

$V = BH$

$= \frac{1}{2}bhH$

$= \frac{1}{2} \times 12 \times 9 \times 10$

$= 540 \text{ in}^3$

9) The base is a 30°-60°-90° triangle with a hypotenuse of 10 m. The height of the prism is 15 m. Find the volume to the nearest tenth.

$V = BH$

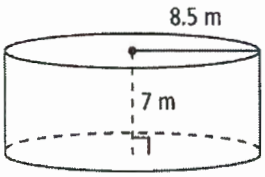
$= \frac{1}{2}bhH$

$= \frac{1}{2} \times 5 \times 5\sqrt{3} \times 15$

$\approx 324.8 \text{ m}^3$

Find the volume of each cylinder in terms of π and to the nearest tenth.

10)



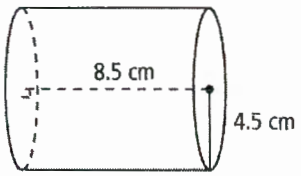
$V = BH$

$= \pi r^2 H$

$= \pi \times 8.5^2 \times 7$

$= 505.8\pi \text{ m}^3$

11)



$V = BH$

$= \pi r^2 H$

$= \pi \times 4.5^2 \times 8.5$

$\approx 172.1\pi \text{ cm}^3$

12) a right cylinder with a radius of 3.2 cm and a height of 10.5 cm

$V = BH$

$= \pi r^2 H$

$= \pi \times 3.2^2 \times 10.5$

$= 107.5\pi \text{ cm}^3$

13) a right cylinder with a diameter of 8 ft and a height of 15 ft.

$V = BH$

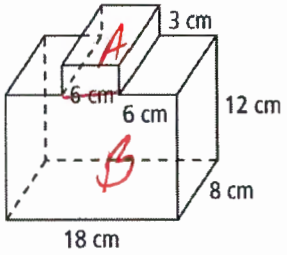
$= \pi r^2 H$

$= \pi \times 4^2 \times 15$

$= 240\pi \text{ ft}^3$

Find the volume of each composite figure to the nearest whole tenth.

14)



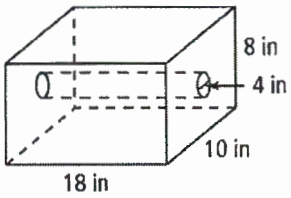
$V = A + B$

$= (6 \times 8 \times 3) + (18 \times 8 \times 12)$

$= 144 + 1728$

$= 1872\ cm^3$

15)



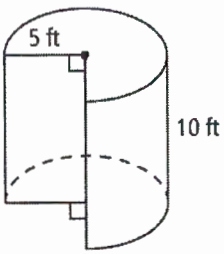
$V =$ Rectangular Prism $-$ Cylinder

$= (18 \times 10 \times 8) - (3.14 \times 2^2 \times 18)$

$= 1440 - 226.08$

$= 1213.92 \approx 1213.9\ in^3$

16)



$V = \frac{3}{4}$ (Cylinder)

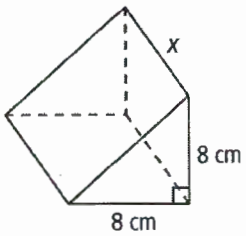
$= \frac{3}{4}(3.14 \times 5^2 \times 10)$

$= \frac{3}{4}(785)$

$= 588.75 \approx 588.8\ ft^3$

Find the value of x to the nearest tenth.

17) Volume: 576 cm^3



$V = BH$

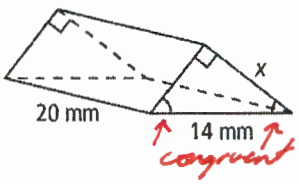
$V = \frac{1}{2}bhH$

$576 = \frac{1}{2} \times 8 \times 8 \times x$

$576 = 32x$

$x = 18\ cm$

18) Volume: 980 mm^3



$V = BH$

$V = \frac{1}{2}bhH$

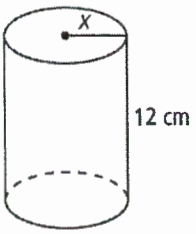
$980 = \frac{1}{2} \cdot x \cdot x \cdot 20$

$980 = 10x^2$

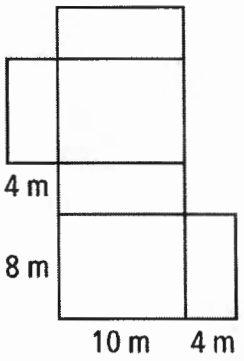
$98 = x^2$

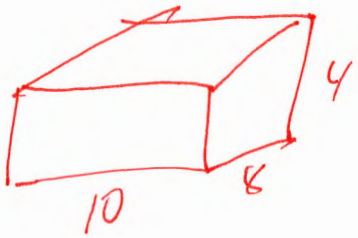
$x \approx 9.9\ mm$

19) Volume: 602.88 cm^3



10) What is the volume of the solid figure formed by the net?





$V = BH$

$= 10 \times 8 \times 4$

$= 320\ m^3$