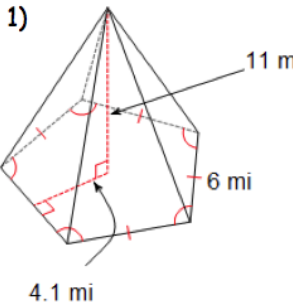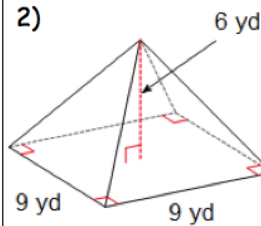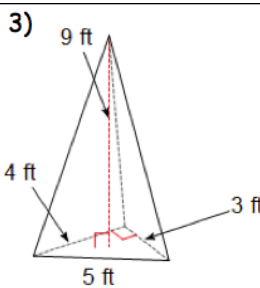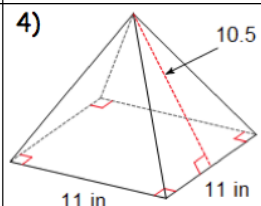# 10.4 Practice Solutions

Directions: Find the volume of each figure. Round to the nearest tenth if necessary.

1)

11 mi
6 mi
4.1 mi

$V = \frac{1}{3}(\frac{1}{2}ap)h$

$= \frac{1}{3}(\frac{1}{2})(4.1)(30)(11)$

$\boxed{= 225.5 \text{ mi}^3}$

2)

6 yd
9 yd   9 yd
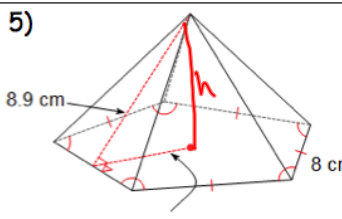
$V = \frac{1}{3}(s^2)h$

$= \frac{1}{3}(9^2)(6)$

$\boxed{= 162 \text{ yd}^3}$

3)

9 ft
4 ft
3 ft
5 ft
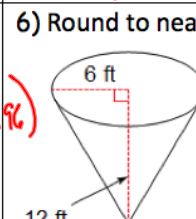
$V = \frac{1}{3}(\frac{1}{2}bh)h$

$= \frac{1}{3}(\frac{1}{2})(4)(3)(9)$

$\boxed{= 18 \text{ ft}^3}$

4)

10.5 in
11 in   11 in

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

$= \frac{1}{3}(11)^2(4\sqrt{5})$

$\boxed{\frac{484\sqrt{5}}{3} \text{ in}^3}$

or

$\boxed{360.8 \text{ in}^3}$

h   10.5
5.5

$h^2 + 5.5^2 = 10.5^2$

$h^2 = 10.5^2 - 5.5^2$

$\sqrt{h^2} = \sqrt{80} = \sqrt{16}\sqrt{5}$

$h = 4\sqrt{5}$

5)

8.9 cm
8 cm
5.5 cm

$V = \frac{1}{3}(\frac{1}{2}ap)(h)$

$= \frac{1}{3}(\frac{1}{2})(5.5)(40)(\sqrt{48.96})$

$\boxed{= 256.4 \text{ cm}^3}$

$h^2 + 5.5^2 = 8.9^2$

$h^2 = 8.9^2 - 5.5^2$

$h^2 = 48.96$

$h = \sqrt{48.96}$

6) Round to nearest tenth and leave in terms of π.

6 ft
12 ft

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

$= \frac{1}{3}\pi(6^2)(12)$

$\boxed{= 144\pi \text{ ft}^3}$

or

$\boxed{452.4 \text{ ft}^3}$

7) Round to nearest tenth and leave in terms of π.	8) Round to nearest tenth and leave in terms of π.

7)

9.5 yd

6 yd

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

$\frac{1}{3}\pi (3)^2 (\sqrt{81.25})$

$\boxed{27.0\pi \text{ yd}^3}$

or
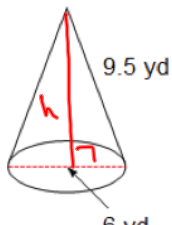
$\boxed{85.0 \text{ yd}^3}$

$h^2 + 3^2 = 9.5^2$

$h^2 = 9.5^2 - 3^2$

$h^2 = 81.25$

$h = \sqrt{81.25}$

8)

9 in

18 in
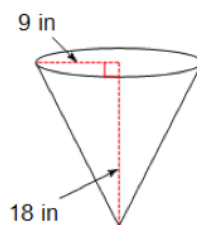
$V = \frac{1}{3}\pi (9^2)(18)$

$\boxed{486\pi \text{ in}^3}$

or

$\boxed{1526.8 \text{ in}^3}$

Directions: Find the missing length.

9) The volume of a cone is 21π and has a height of 7. What is the radius of the cone?	10) The volume of a square pyramid is 2048 and has a height of 24. What is the length of one side of the base?

9)

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

$21\pi = \frac{1}{3}\pi r^2 \cdot 7$

$\left(\frac{3}{7\pi}\right) 21\pi = \frac{7}{3}\pi r^2 \left(\frac{3}{7\pi}\right)$

$9 = r^2$

$\boxed{3 = r}$

10)

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

$2048 = \frac{1}{3} s^2 \cdot 24$

$2048 = 8s^2$

$256 = s^2$

$\boxed{16 = s}$