

SM2 Unit 12 Test Review

Identify a line or segment in $\odot K$ that is described by each term.

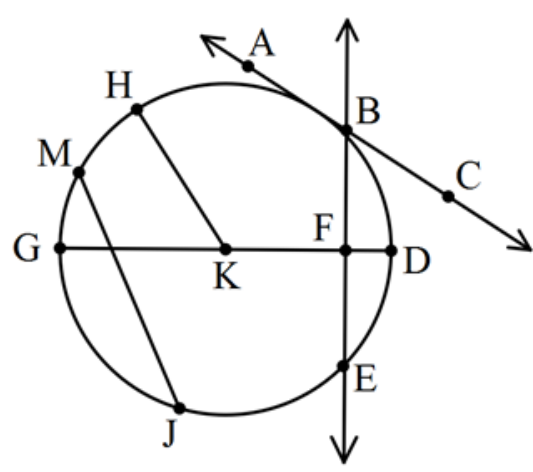
1. Chord \overline{MJ} or \overline{BE} or \overline{GD}

2. Secant \overleftrightarrow{BE}

3. Diameter \overline{GD}

4. Tangent Line \overleftrightarrow{AC}

5. Radius \overline{HK} , \overline{GK} , \overline{KD}



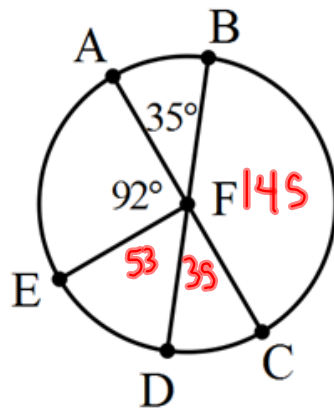
\overline{AC} and \overline{BD} are diameters. Find the indicated measure and determine if it is a major or minor arc.

6. $m\widehat{DC}$ 35° Is this arc a major or minor arc? minor

7. $m\widehat{BC}$ 145° Is this arc a major or minor arc? minor

8. $m\widehat{BEC}$ 215° Is this arc a major or minor arc? major
360 - 145

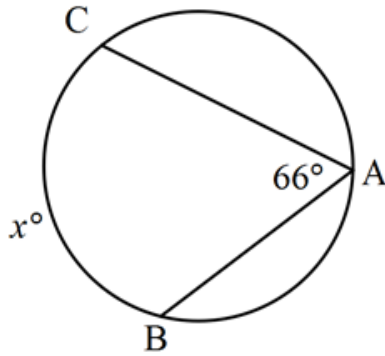
9. $m\widehat{DE}$ 53° Is this arc a major or minor arc? minor



$\widehat{BC} = 180 - \widehat{AB}$
 $180 - 35 = 145^\circ$
 \overline{BD} is a diameter
 \overline{AC} is a diameter

Find the value of the variable(s). Show work.

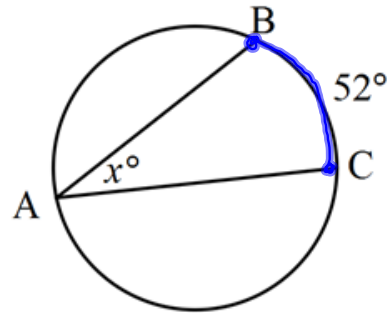
10.



$$x = 66(2) = 132^\circ$$

$$\boxed{x = 132}$$

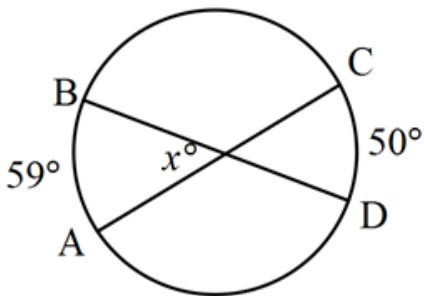
11.



$$x = \frac{1}{2}(52)$$

$$\boxed{x = 26^\circ}$$

12.

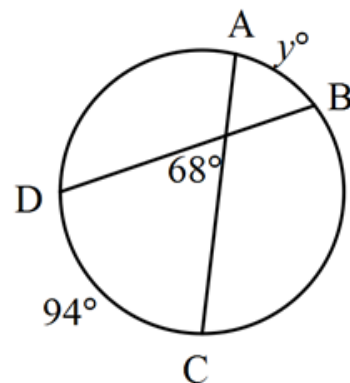


$$x = \frac{1}{2}(59 + 50)$$

$$x = \frac{1}{2}(109)$$

$$\boxed{x = 54.5}$$

13.



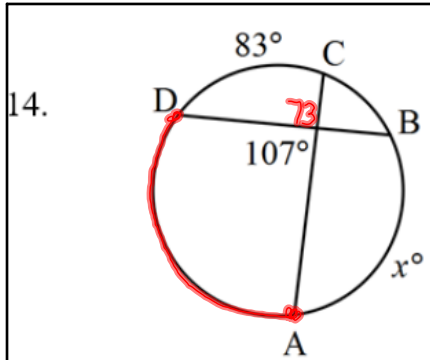
$$68 = \frac{1}{2}(94 + y)$$

$$68 \cdot 2 = 94 + y$$

$$136 = 94 + y$$

$$\begin{array}{r} 136 \\ - 94 \\ \hline 42 = y \end{array}$$

$$\boxed{42 = y}$$



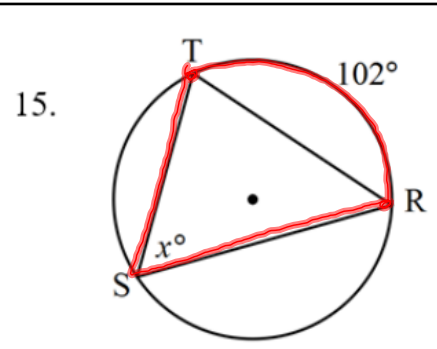
$$180 - 107 = 73$$

$$73 = \frac{1}{2}(83 + x)$$

$$2(73) = 83 + x$$

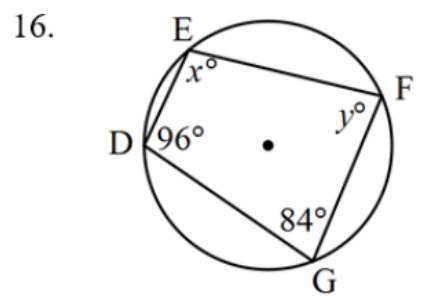
$$146 = 83 + x$$

$$\boxed{63 = x}$$



$$\angle S = \frac{1}{2}(102)$$

$$\boxed{\angle S = 51^\circ}$$



$$x + 84 = 180$$

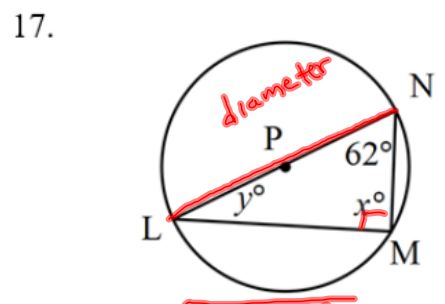
$$y + 96 = 180$$

$$x = 180 - 84$$

$$y = 180 - 96$$

$$\boxed{x = 96}$$

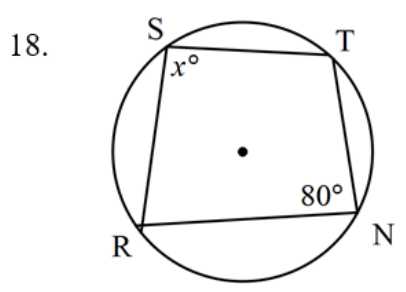
$$y = 84^\circ$$



$$\boxed{x = 90^\circ}$$

$$y = 180 - 62 - 90$$

$$\boxed{y = 28}$$



$$x + 80 = 180$$

$$\angle S + \angle N = 180^\circ$$

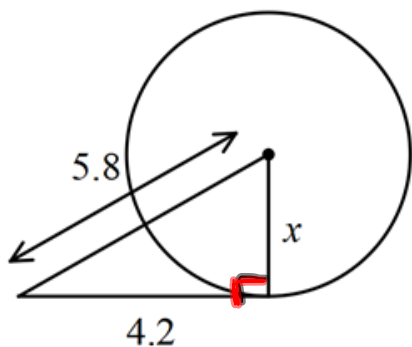
$$x = 180 - 80$$

$$\boxed{x = 100^\circ}$$

Find the segment length indicated.

Assume that lines which appear to be tangent are actually tangent.

19.



$$x^2 + 4.2^2 = 5.8^2$$

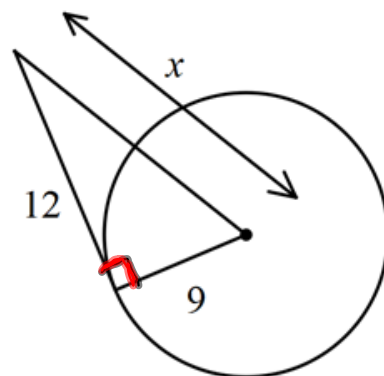
$$x^2 = 5.8^2 - 4.2^2$$

$$x = \sqrt{5.8^2 - 4.2^2}$$

$$x = \sqrt{16}$$

$$\boxed{x = 4}$$

20.



$$9^2 + 12^2 = x^2$$

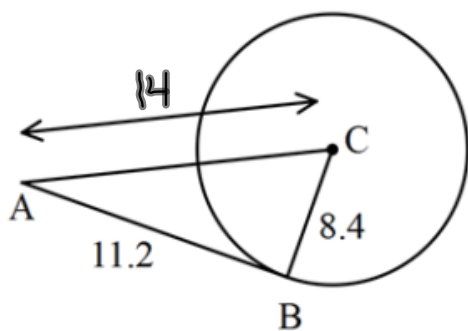
$$225 = x^2$$

$$\sqrt{225} = x$$

$$\boxed{15 = x}$$

Determine if line AB is tangent to the circle.

21.



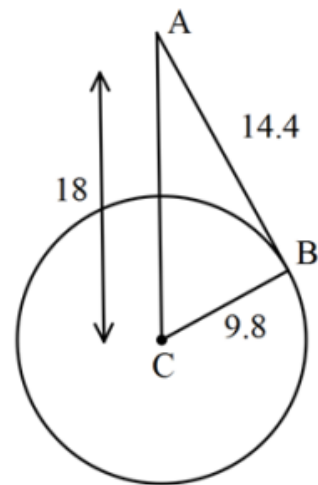
$$AC = 14$$

$$\text{Does } 11.2^2 + 8.4^2 = 14^2$$

$$196 = 196$$

yes tangent

22.



Does

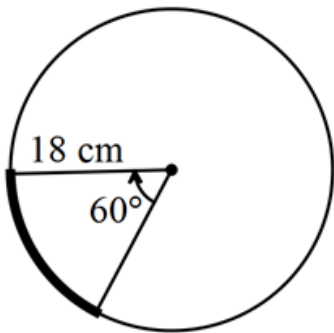
$$14.4^2 + 9.8^2 = 18^2$$

$$303.4 \neq 324$$

not tangent

Find the length of each arc. Round your answers to the nearest tenth.

23.

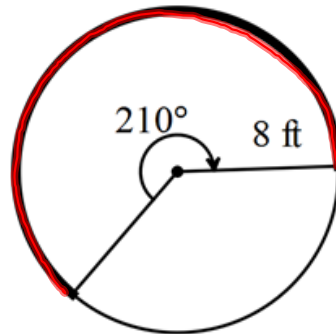


$$L = \frac{\text{Angle}}{360} \cdot 2 \cdot r \cdot \pi$$

$$\frac{60}{360} \cdot 2 \cdot 18 \cdot \pi$$

$$\boxed{18.8 \text{ cm}}$$

24.

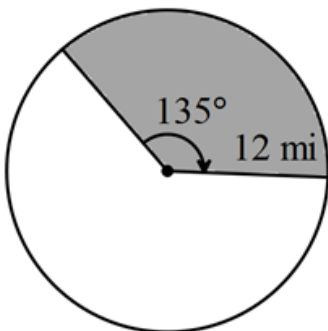


$$\frac{210}{360} \cdot 2 \cdot 8 \cdot \pi$$

$$\boxed{29.3 \text{ ft}}$$

Find the area of each sector. Leave answers in terms of π .

25.



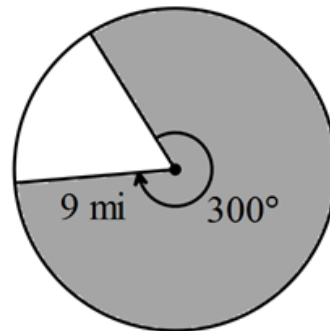
$$A = \frac{\text{angle}}{360} \cdot r \cdot r \cdot \pi$$

$$\frac{135}{360} \cdot 12 \cdot 12 \cdot \pi$$

$$135 \div 360 (12)(12) \cdot \pi$$

$$\boxed{54\pi \text{ mi}^2}$$

26.



$$\frac{300}{360} \cdot 9 \cdot 9 \cdot \pi$$

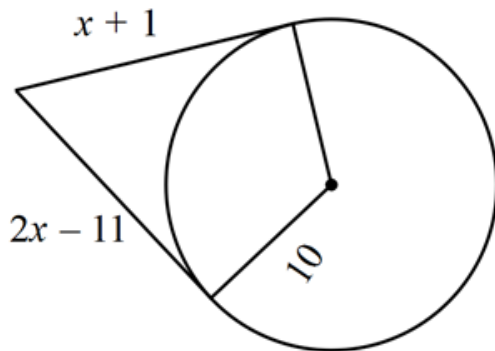
$$\boxed{67.5\pi \text{ mi}^2}$$

or

$$\boxed{\frac{135\pi}{2} \text{ mi}^2}$$

Solve for x . Assume that lines which appear to be tangent are actually tangent.

27.



$$x + 1 = 2x - 11$$

$$-x \quad -x$$

$$1 = x - 11$$

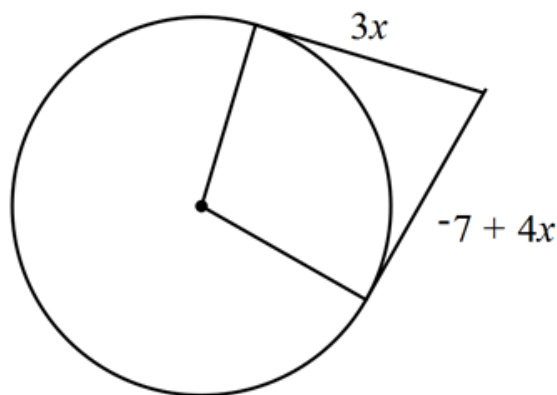
$$+11$$

$$+11$$

$$12 = x$$

$$\boxed{12 = x}$$

28.



$$3x = -7 + 4x$$

$$-4x \quad -4x$$

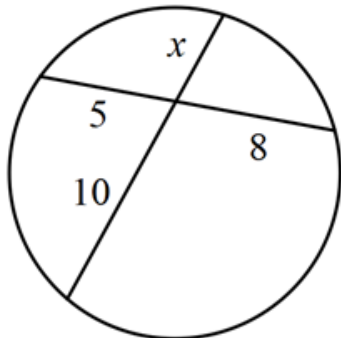
$$-x = -7$$

$$\frac{-x}{-1} = \frac{-7}{-1}$$

$$\boxed{x = 7}$$

Solve for x .

29.

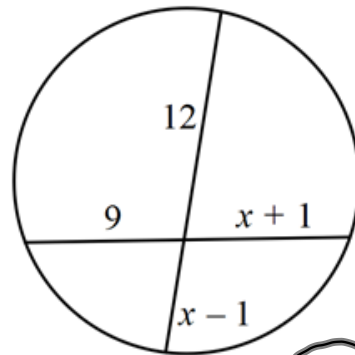


$$5(8) = 10x$$

$$40 = 10x$$

$$\boxed{4 = x}$$

30.



$$12(x-1) = 9(x+1)$$

Distribute $12x - 12 = 9x + 9$

$$12x - 12 = 9x + 9$$

$$-9x \quad -9x$$

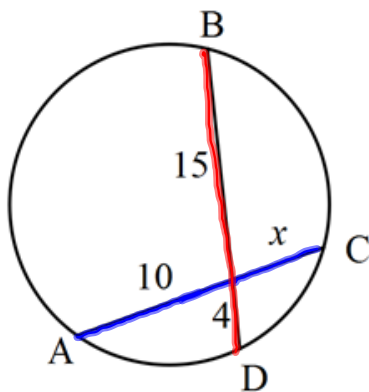
$$3x - 12 = 9$$

$$+12 \quad +12$$

$$3x = 21$$

$$\boxed{x = 7}$$

31.



$$10(x) = 15(4)$$

$$10x = 60$$

$$\boxed{x = 6}$$

Write the standard equation of the circle with the given center and radius.

32. Center: $(0, 0)$, Radius: $\sqrt{3}$
 h, k $r = \sqrt{3}$

Equation: $x^2 + y^2 = 3$

$$(x-h)^2 + (y-k)^2 = r^2$$

$$(x-0)^2 + (y-0)^2 = (\sqrt{3})^2$$

$$x^2 + y^2 = 3$$

33. Center: $(-3, -8)$, Radius: 6
 (h, k) $r = 6$

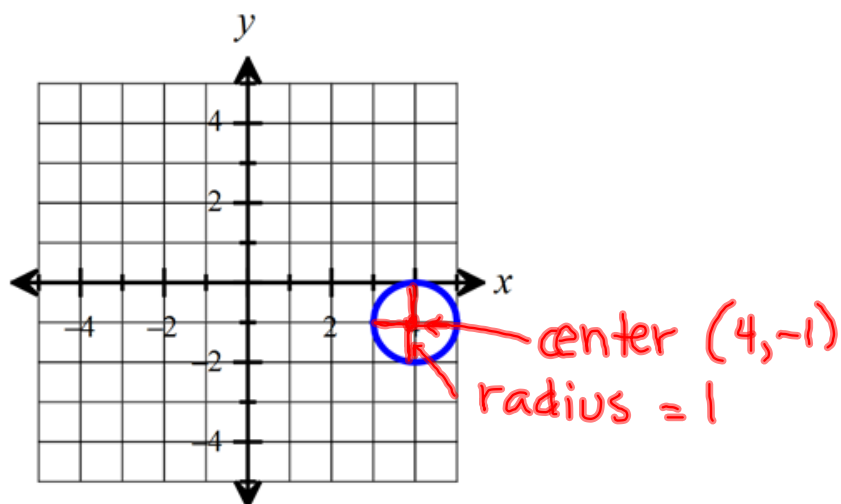
Equation: $(x+3)^2 + (y+8)^2 = 36$

$$(x-h)^2 + (y-k)^2 = r^2$$

$$(x--3)^2 + (y--8)^2 = 6^2$$

$$(x+3)^2 + (y+8)^2 = 36$$

34.



Center: (4, -1) Radius: 1

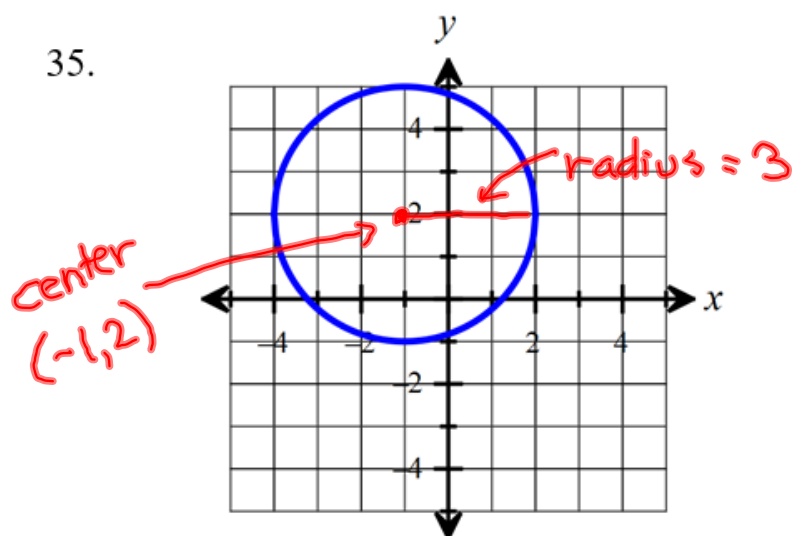
Equation: $(x-4)^2 + (y+1)^2 = 1$

$$(x-h)^2 + (y-k)^2 = r^2$$

$$(x-4)^2 + (y-(-1))^2 = 1^2$$

$$(x-4)^2 + (y+1)^2 = 1$$

35.



Center: $(-1, 2)$ Radius: 3

Equation: $(x+1)^2 + (y-2)^2 = 9$

$$(x-h)^2 + (y-k)^2 = r^2$$

$$(x-(-1))^2 + (y-2)^2 = 3^2$$

$$(x+1)^2 + (y-2)^2 = 9$$

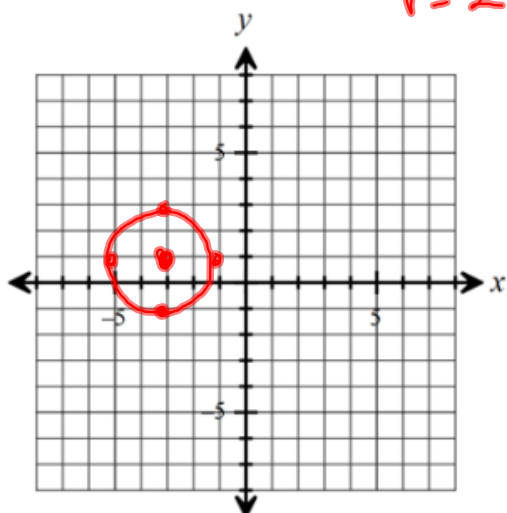
Give the radius and the coordinates of the center of each circle. Then graph the circle.

36. $(x + 3)^2 + (y - 1)^2 = 4$

Center: $(-3, 1)$ $r^2 = 4$

Radius: 2 $r = \sqrt{4}$

$r = 2$

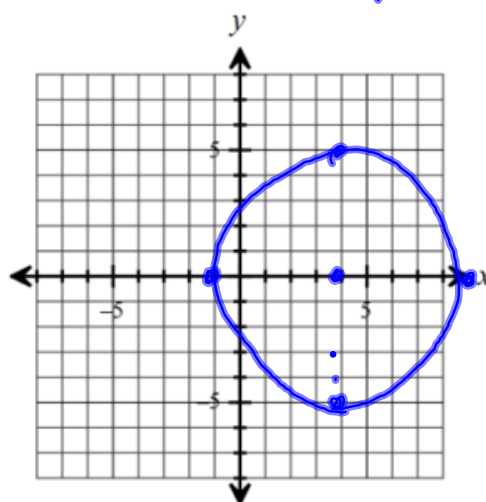


37. $(x - 4)^2 + y^2 = 25$

Center: $(4, 0)$ $r^2 = 25$

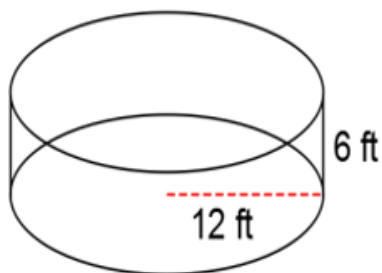
Radius: 5 $r = \sqrt{25}$

$r = 5$



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

38.



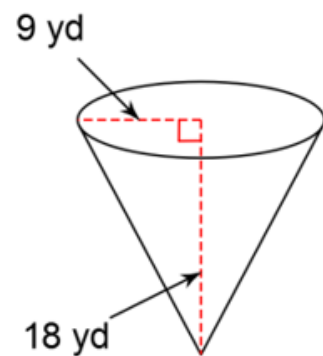
cylinder

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

$$V = \pi (12)^2 (6)$$

$$V = 2714.34 \text{ ft}^3$$

39.



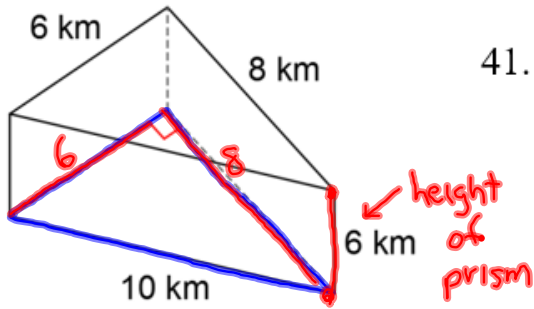
cone

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

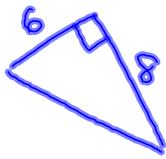
$$V = \frac{1}{3} \pi (9)^2 (18)$$

$$V = 1526.81 \text{ yd}^3$$

40.



triangular prism



Area of triangle

$$\frac{1}{2}bh$$

$$\frac{1}{2}(6)(8)$$

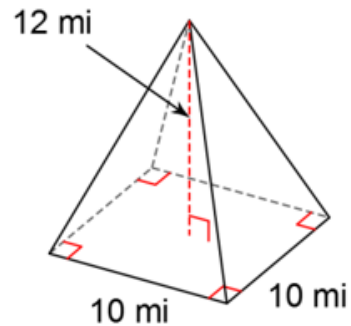
$V = \text{area of triangle} \cdot \text{height of prism}$

$$\frac{1}{2}(6)(8)(6)$$

$$\boxed{144 \text{ km}^3}$$

(Did not need to use 10)

41.



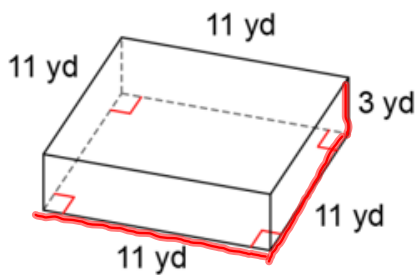
pyramid

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

$$V = \frac{1}{3}(10)(10)(12)$$

$$\boxed{V = 400 \text{ mi}^3}$$

42.



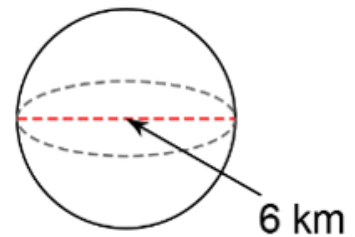
rectangular prism

$$V = LWH$$

$$V = 11(11)(3)$$

$$V = 363 \text{ yd}^3$$

43.



sphere

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

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

$$V = 113.097 \text{ km}^3$$

or 113.1 km^3