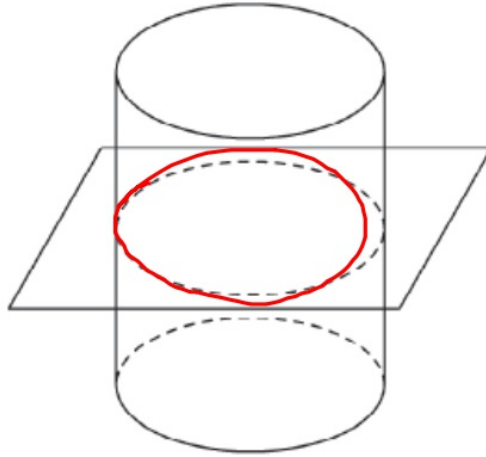


50. Describe the cross section.



circle

51. Find the volume of a right rectangular prism with length 12 in., width 10 in., and height 6 in. Round to the nearest tenth, if necessary.
52. A fish tank is in the shape of a rectangular prism. The height of the tank is 18 in. The width of the tank is 17 in. The length of the tank is 38 in. Find the amount of water the tank can hold to the nearest gallon. (Hint: 1 gallon  $\approx$  0.134  $\text{ft}^3$ .)
53. Find the volume of a cylinder with a base area of  $25\pi \text{ in}^2$  and height equal to the radius. Give your answer both in terms of  $\pi$  and rounded to the nearest tenth.

Volume prism


$$B \cdot h$$

(Area of the Base shape) (height of prism)

Cylinder

$$B \cdot h \text{ so } \left( \begin{array}{c} \text{Area} \\ \text{of} \\ \text{Circle} \end{array} \right) \cdot h \text{ (height of cylinder)}$$

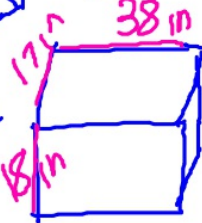
#51



$$= 12 \cdot 10 \cdot 6 = 720 \text{ in}^3$$

$l \cdot w \cdot h$

#52



$$V = 17 \cdot 18 \cdot 38 = 6.73 \text{ ft}^3$$

convert.  $\frac{1 \text{ Gall}}{0.134 \text{ ft}^3} = \frac{x}{6.73}$

#53



$h=r$

$$A = 25\pi$$

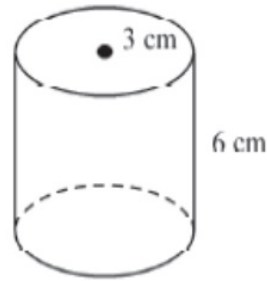
$$A = \pi R^2 \quad R=5$$

$$V = (25\pi)(5) = 125\pi$$

$$\frac{6.73}{0.134} = \frac{0.134x}{0.134}$$

$$x = 50 \text{ gallons/gall.}$$

54. The radius and height of the cylinder are multiplied by 4. Describe the effect on the volume.



SF 4

AF =  $4^2$

VF =  $4^3 = 64$

X

$X^2$

$X^3$

times bigger



$6 \cdot 3^2 \pi$

$6 \cdot 9 \pi$

$54 \pi$

x64

old vol

new if 4 times bigger



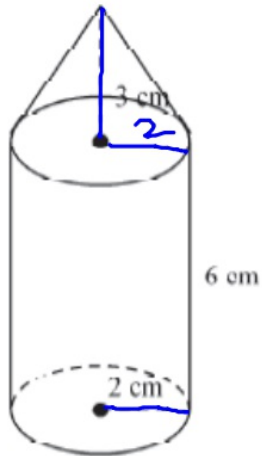
$(24) 12^2 \pi$

$24 \cdot 144 \pi$

$3456 \pi$

New vol

55. Find the volume of the composite figure. Round to the nearest tenth. (Hint: Volume of a cone is  $V = \frac{1}{3} \pi r^2 h$ .)



Volume of cone

$$\frac{1}{3} (\pi R^2) h \quad 4\pi$$

(height of cone)

Cylinder  $24\pi$

$$\text{add} = \boxed{88.0 \text{ cm}^3}$$

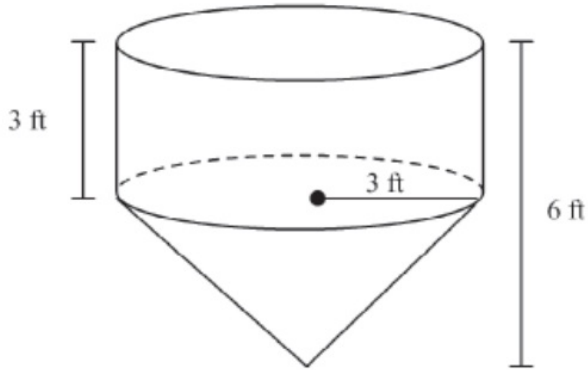
56. Find the volume of a rectangular pyramid with length 11 m, width 7 m, and height 8 m. Round to the nearest tenth, if necessary.

$$205.3 \text{ m}^3$$

57. The base area of a model square pyramid is 1,000 sq ft. The height of the pyramid is 100 ft. Find the volume of the pyramid in cubic feet. Round to the nearest cubic foot.

$$33,333.33 \text{ ft}^3$$

58. Find the volume of the composite figure. Round to the nearest hundredth.



$$113.04 \text{ ft}^3$$

Volume of pyramid/cone

$$\frac{1}{3} B(h)$$

$$\frac{1}{3} (\text{area of base}) (\text{height of pyramid})$$

$$\frac{1}{3} (\pi R^2) (\text{height of cone})$$

Volume of a sphere

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

59. Find the diameter of a sphere with volume  $972\pi \text{ in}^3$ .

$$\frac{3}{4} \cdot 972\pi = \frac{34}{43} \pi R^3$$

$$R=9$$

$$d=18$$

$$3 \cdot 243 = R^3 \quad 9 \cdot 9 \cdot 9$$

$$\sqrt[3]{729} = \sqrt[3]{R^3}$$

60. Find the volume of a sphere with diameter 30 ft. Give your answer in terms of  $\pi$ .

$4500\pi \text{ ft}^3$

61. Find the surface area of a sphere with volume  $288\pi \text{ m}^3$ . Give your answer in terms of  $\pi$ .

$144\pi \text{ m}^2$

62.  $\overline{AB}$  and  $\overline{AC}$  are tangent to  $\odot P$ . Find  $AB$ .

#62

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

$3x + 4 = 11y$

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

$= \frac{11}{2}$  or  $5.5$

Two tangents from the same point are  $\cong$  (rubber band)

Surface area for sphere

$SA = 4\pi R^2$

#60  $d=30$

$r=15$

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

$15 \cdot 15 \cdot 15$

#61  $(\frac{3}{4}) 288\pi = \sqrt[3]{216}$

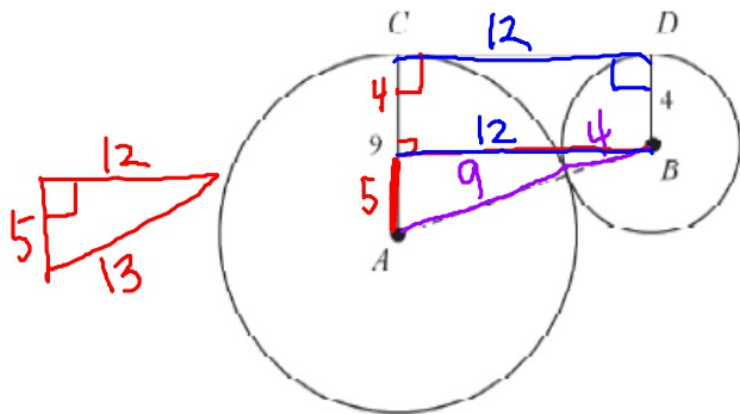
$6 \cdot 6 \cdot 6$

$R=6$

$4 \cdot 6^2 \pi$

$4 \cdot 36 \pi$

63.  $\odot A$  has radius 9,  $\odot B$  has radius 4, and  $\overline{CD}$  is a common tangent. What is  $CD$ ? (Hint: Draw a perpendicular segment  $\overline{BE}$  from  $B$  to  $\overline{AC}$ .)  $CD = 12$



3:4:5

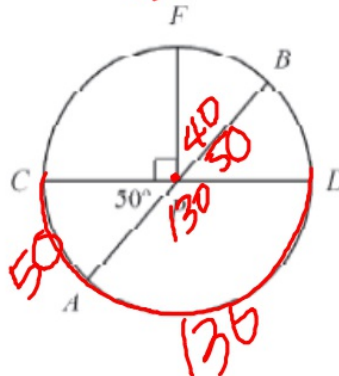
5:12:13

8:15:17

7:24:25

Central  $\angle =$  arc

64. Find  $m\widehat{CFB}$ .  $90 + 40 = 130$

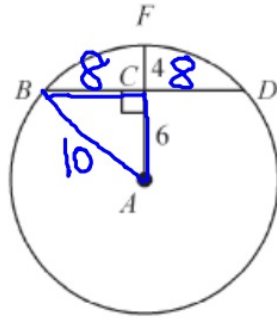


65. Find  $BD$ .

$$BD = 8 + 8 = 16$$

$$6^2 + x^2 = 10^2$$

or  $6 : ? : 10$

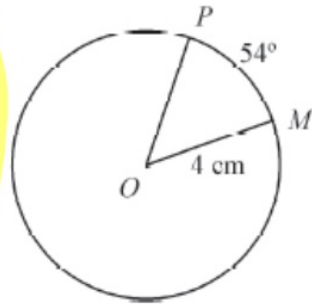


16

66. Find the area of sector  $POM$ . Give your answer in terms of  $\pi$ .

Area of sector

$$\frac{x^\circ}{360} (\pi R^2)$$

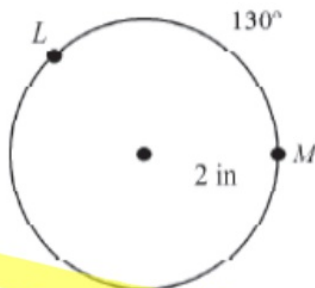


$$\text{Area} = \pi R^2$$

$$= 4^2 \pi = 16 \pi$$

$$\frac{54^\circ}{360^\circ} = \frac{1}{15} \rightarrow \frac{1}{15} (16\pi) = \frac{16}{15} \pi$$

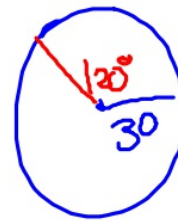
67. Jenny's birthday cake is circular and has a 30 cm radius. Her slice creates an arc with a central angle of  $120^\circ$ . What is the area of Jenny's slice of cake? Give your answer in terms of  $\pi$ .
68. Find the arc length of an arc with measure  $130^\circ$  in a circle with radius 2 in. Round to the nearest tenth.



$$\frac{130}{360} (2 \cdot 2 \cdot \pi)$$

4.5

#67



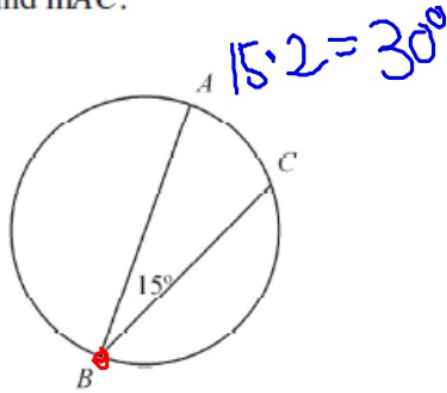
$$\frac{120}{360} (30^2) \pi$$

$$\frac{120 \cdot 900}{360} \pi$$

Arc Length

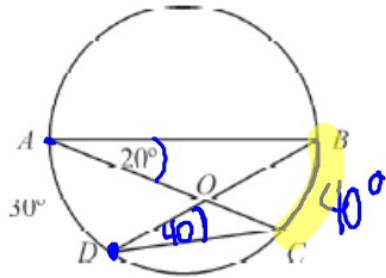
$$\frac{X^\circ}{360^\circ} (2\pi R)$$

69. Find  $m\widehat{AC}$ .



Any angle with  
vertex on the circle  
 $\angle = \frac{1}{2} \text{ARC}$

70. A wheel from a motor has springs arranged as in the figure. Find  $m\angle DOC$ .

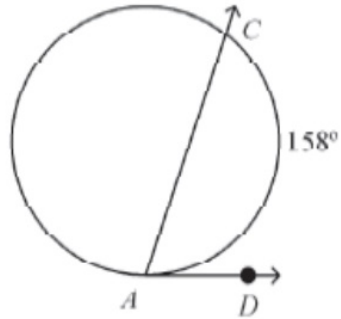


$\angle DOC$  and  $\angle BAC$   
intercept same  
40 $^\circ$  ARC so

$\angle DOC = \angle BAC$   
20 $^\circ$  each

Any angle with  
vertex inside  
the circle  
 $\frac{\text{add arcs}}{2} = \text{average}$

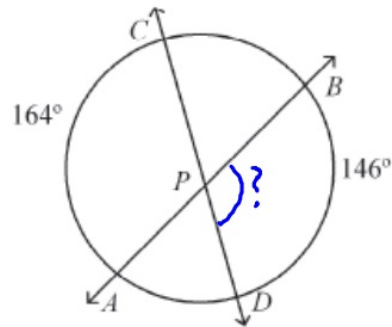
71. Find  $m\angle CAD$ .



$$\frac{158}{2}$$

on the circle =  $\frac{1}{2}$  arc

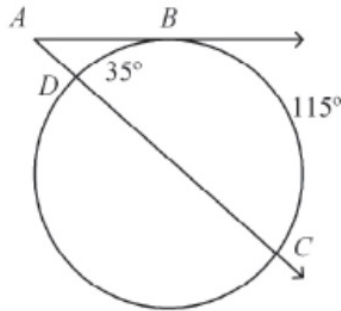
72. Find  $m\angle BPD$ .



$$\frac{146 + 164}{2}$$

inside circle  
add arcs  
2

73. Find  $m\angle A$ .

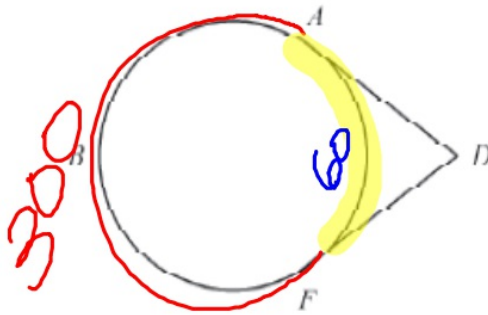


$$\frac{115 - 35}{2}$$

Any angle outside the circle

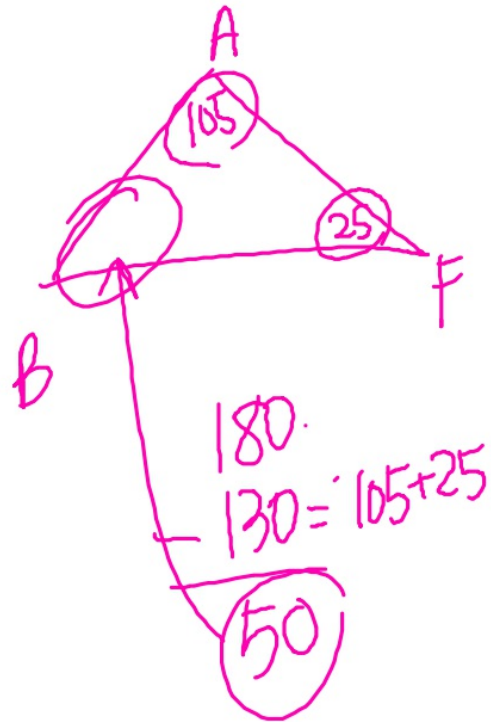
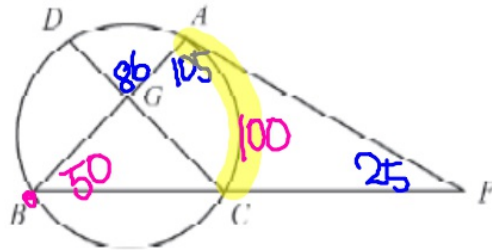
$$\frac{\text{Subtract arcs}}{2}$$

74. Two of the muscles that control eye movement are attached to the eyeball and intersect behind the eye as shown. If  $m(\text{arc})ABF = 300^\circ$ , what is  $m\angle ADF$ ?

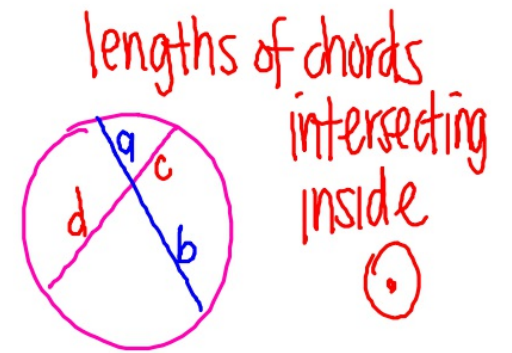
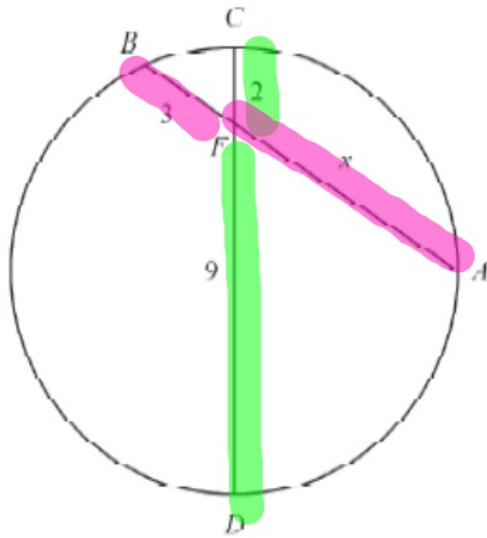


$$\frac{300 - 60}{2}$$

75. Given  $m\angle AFB = 25^\circ$ ,  $m\angle BAF = 105^\circ$ , and  $m\angle AGD = 86^\circ$ , find  $m\widehat{AC}$ .



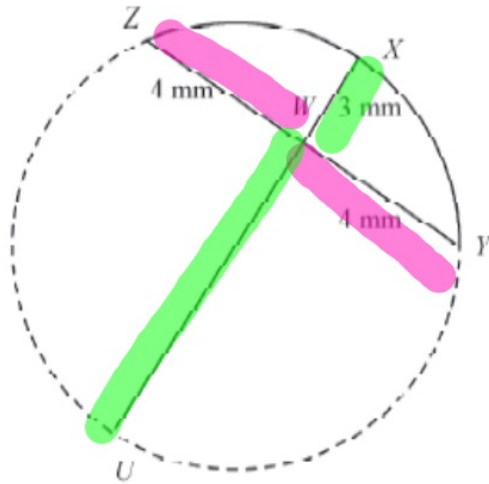
76. Find the value of  $x$  and the length of each chord.



$$a \cdot b = c \cdot d$$

$$3 \cdot x = 2 \cdot 9$$

77. Archaeologists found a piece of an old coin. To calculate its original diameter, they drew a chord  $\overline{XU}$  and its perpendicular bisector  $\overline{ZY}$ . Find the coin's diameter.



$$4 \cdot 4 = 3 \cdot X$$

$$16 = 3X$$

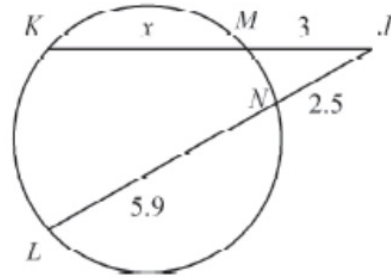
$$5\frac{1}{3} = \frac{16}{3} = X$$

$$X + 3 = \text{Diameter}$$

$$5\frac{1}{3} + 3 = 8\frac{1}{3}$$

lengths of two secants from outside. ⊙

78. Find the value of  $x$  and the length of each secant segment.

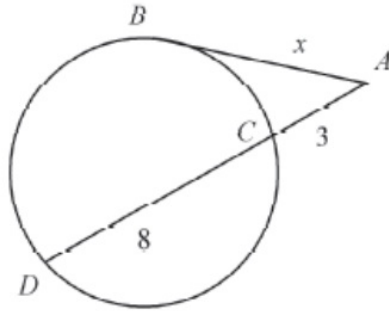


$$(\text{outside})(\text{whole}) = (\text{outside})(\text{whole})$$

$$(3)(3+x) = (2.5)(2.5+5.9)$$

$$9+3x = 2.5(8.4)$$

9. Find the value of  $x$ . Round to the nearest hundredth.



$$(\text{out})(\text{whole}) = (\text{out})(\text{whole})$$

$$x \cdot x = 3(11)$$

$$x^2 = 33$$

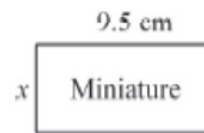
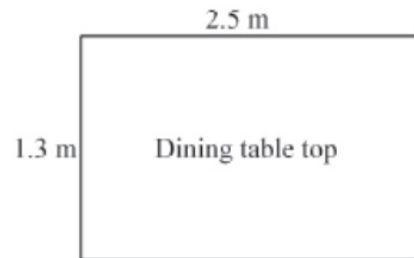
10. Write the equation of a circle with center  $M(7, -10)$  and radius 2.

If center is  $(a, b)$   
radius = 4

Equation of a circle

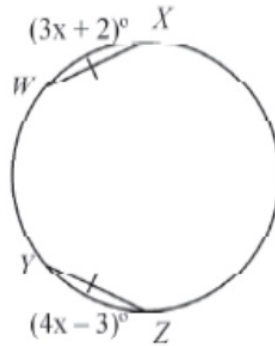
$$(x - a)^2 + (y - b)^2 = r^2$$

80. Write the equation of a circle with center  $M(7, -10)$  and radius 2.
81. Graph the equation  $(x - 3)^2 + (y + 2)^2 = 25$ .
82. Maya is making a miniature dinner table for her little sister. She wants the table top to be similar to their real dinner table top. Find the width of the miniature table top to the nearest tenth of a centimeter.



$$\frac{2.5}{9.5} = \frac{1.3}{x}$$

83.  $\overline{WX} \cong \overline{YZ}$ . Find  $m\widehat{WX}$ .



If chords in a  $\odot \cong$

then arcs are  $\cong$

solve for x

$$3x + 2 = 4x - 3$$

