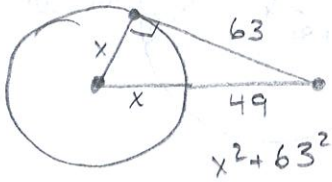
Unit 6 Test Review

You are standing 49 feet from a circular swimming pool. The distance from you to a point of tangency on the pool is 63 feet. What is the radius of the swimming pool?



$x^2 + 63^2 = (x+49)^2$

$x^2 + 3969 = x^2 + 98x + 2401$

$98x = 1568$

$x = 16$

$\overline{AC}$ and $\overline{BD}$ are diameters of circle *E*.

$\widehat{AD} = 360 - 293$
$= 67$

Find the measure of each arc if $m\widehat{ACD} = 293°$

a) $\widehat{AD}$ 67°

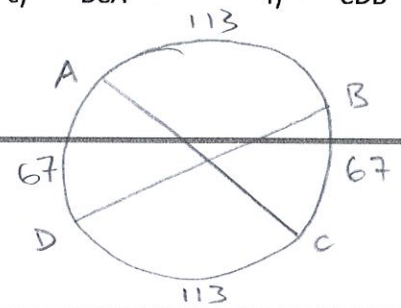
b) $\widehat{BC}$ 67°

c) $\widehat{BCA}$ 247°

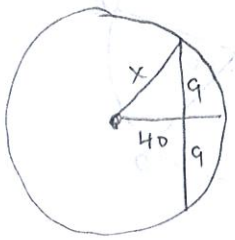
d) $\widehat{DCB}$ 180°

e) $\widehat{AB}$ 113°

f) $\widehat{CDB}$ 293°



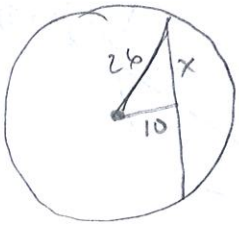
A chord is 18 inches long and is 40 inches from the center of the circle. Find the radius.



$9^2 + 40^2 = x^2$

$x = 41$

Find the length of a chord that is 10 feet from the center of a circle with a radius of 26 feet.

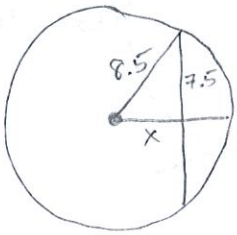


$10^2 + x^2 = 26^2$

$x = 24$

CHORD $= 2x$
$= 48$

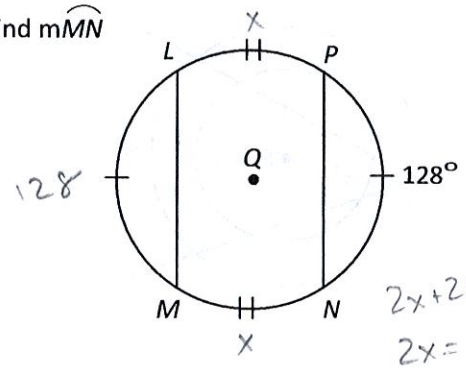
If the radius of a circle is 8.5 units long and a chord is 15 units long, how far is the chord from the center of the circle?



$x^2 + 7.5^2 = 8.5^2$

$x = 4$

Find $m\widehat{MN}$



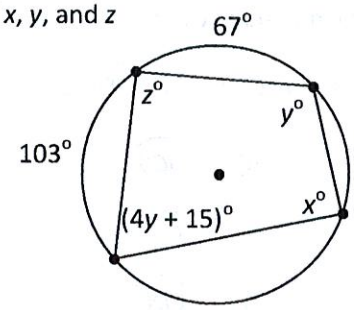
$2x + 256 = 360$

$2x = 104$

$x = 52$

Unit 6 Test Review

Find x, y, and z



$4y+15+y=180$

$5y=165$

$y=33$

$x=\frac{1}{2}(103+67)$

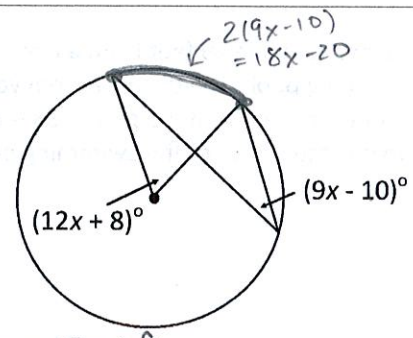
$=\frac{1}{2}(170)=85$

$x+z=180$

$85+z=180$

$z=95$

Find x

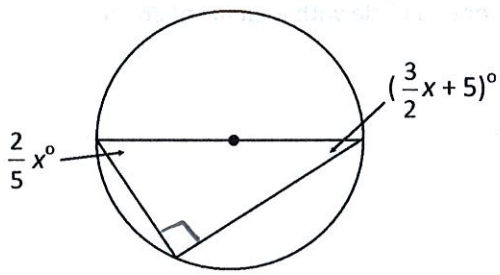


$2(9x-10)$
$=18x-20$

$18x-20=12x+8$

$6x=28$ $\quad x=14/3$

Find x

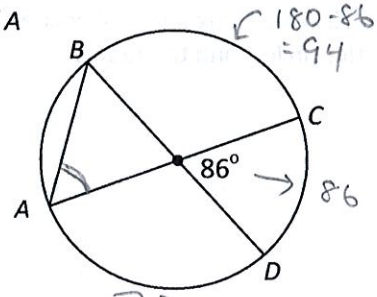


$[\frac{2}{5}x+\frac{3}{2}x+5=90]\cdot 10$

$4x+15x+50=900$

$19x=850$ $\quad x=850/19$

Find m∠A



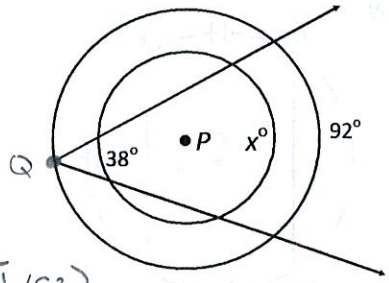
$180-86$
$=94$

86

$m\angle A=\frac{1}{2}(m\overset{\frown}{BC})$

$=\frac{1}{2}(94)=47$

Find x



OUTER CIRCLE

$m\angle Q=\frac{1}{2}(92)$

$=46$

INNER CIRCLE

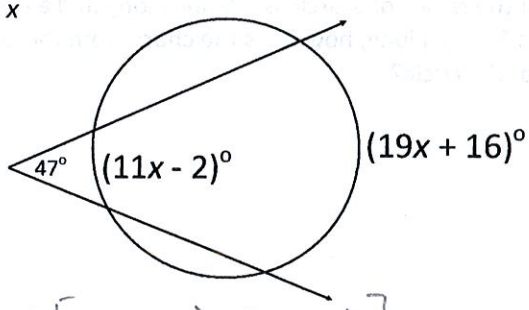
$m\angle Q=\frac{1}{2}(x-38)$

$46=\frac{1}{2}(x-38)$

$92=x-38$

$x=130$

Find x



$47=\frac{1}{2}[(19x+16)-(11x-2)]$

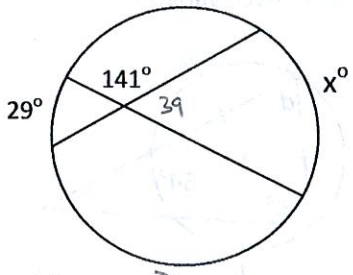
$94=19x+16-11x+2$

$94=8x+18$

$76=8x$ $\quad x=19/2$

Unit 6 Test Review

Find x

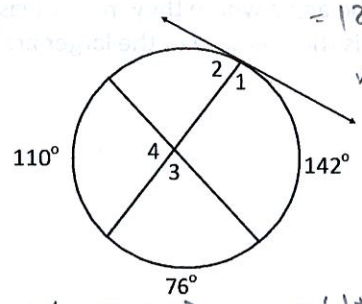


$39 = \frac{1}{2}(x+29)$

$78 = x+29$

$x = 49$

Find ∠1, ∠2, ∠3, ∠4



$m\angle 4 = \frac{1}{2}(110+142)$
$= 126$

$m\angle 3 + m\angle 4 = 180$

$m\angle 3 + 126 = 180$

$m\angle 3 = 54$

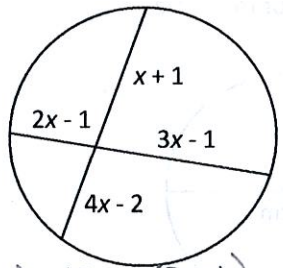
$m\angle 1 = \frac{1}{2}(142+76)$
$= \frac{1}{2}(218) = 109$

$m\angle 1 + m\angle 2 = 180$

$109 + m\angle 2 = 180$

$m\angle 2 = 71$

Find x



$(4x-2)(x+1) = (2x-1)(3x-1)$

$4x^2+4x-2x-2 = 6x^2-2x-3x+1$

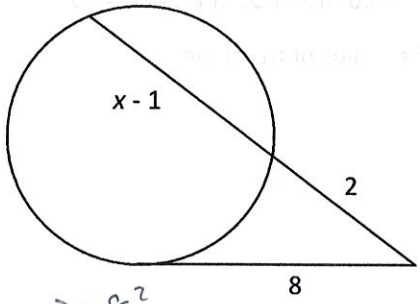
$0 = 2x^2 - 7x + 3$

$0 = (2x-1)(x-3)$

$x = 1/2$ $\boxed{x = 3}$

EXTRANEOUS

Find x

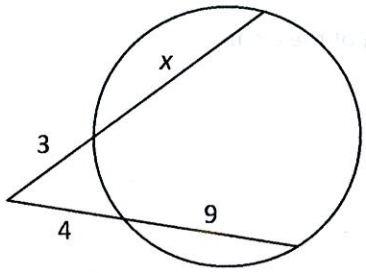


$2(2+x-1) = 8^2$

$2(x+1) = 64$

$x+1 = 32$ $x = 31$

Find x



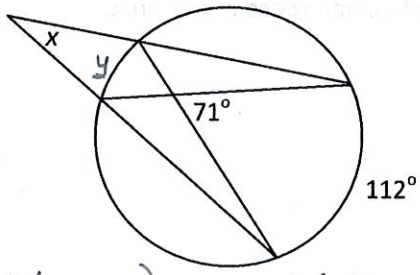
$3(3+x) = 4(4+9)$

$3(3+x) = 52$

$9+3x = 52$

$3x = 43$ $x = 43/3$

Find x



$71 = \frac{1}{2}(112+y)$

$142 = 112+y$

$y = 30$

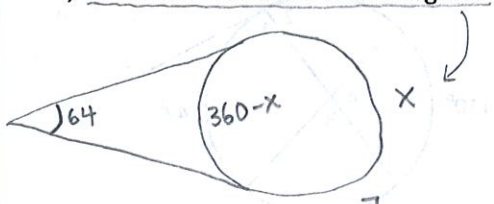
$x = \frac{1}{2}(112-y)$

$= \frac{1}{2}(112-30)$

$x = 41$

Unit 6 Test Review

Two tangents of a circle meet outside of the circle. If the angle where they meet measures 64°, what is the measure of the larger arc?



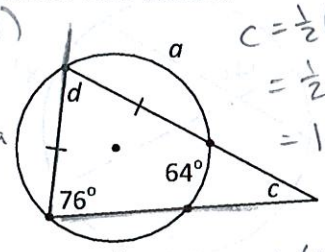
$64 = \frac{1}{2}[x - (360 - x)]$

$128 = x - 360 + x$

$488 = 2x$

$x = 244$

Find the value of each variable



$76 = \frac{1}{2}(a + 64)$

$152 = a + 64$

$a = 88$

$c = \frac{1}{2}(a - 64)$

$= \frac{1}{2}(88 - 64)$

$= 12$

$a + a + b + 64 = 360$

$88 + 88 + b + 64 = 360$

$b = 120$

$d = \frac{1}{2}(b + 64)$

$= \frac{1}{2}(120 + 64)$

$= 92$

Given: Circumference of a circle = 30 in

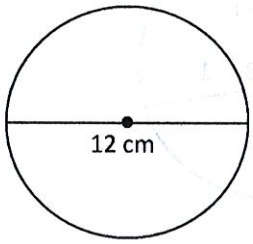
Find the radius of the circle

$C = 2\pi r$

$30 = 2\pi r$

$r = \frac{30}{2\pi} = \frac{15}{\pi}$ in

Find the Area of the circle



$\pi(6)^2$

$= 36\pi$ cm^2

Given: Area of a circle = 169π yd^2

Find the Circumference of the circle

$A = \pi r^2$

$169\pi = \pi r^2$

$r = 13$

$C = 2\pi r$

$= 26\pi$ yd

Given: Circumference of a circle = 31.4 in

Find the Area of the circle

$C = 2\pi r$

$31.4 = 2\pi r$

$r = \frac{31.4}{2\pi} = \frac{15.7}{\pi}$

$A = \pi r^2$

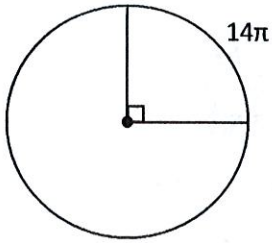
$= \pi\left(\frac{15.7}{\pi}\right)^2$

$= \pi\left(\frac{246.49}{\pi^2}\right)$

$= \frac{246.49}{\pi}$ in^2

Unit 6 Test Review

Find the Circumference of the circle



$\frac{AL}{CIRC} = \frac{m\overset{\frown}{}}{360}$

$\frac{14\pi}{x} = \frac{90}{360}$

$\frac{14\pi}{x} = \frac{1}{4}$ $\quad x = 56\pi$ mm

A circle has Area of 26 ft^2.
If you triple the diameter of this circle, what is the area of the new circle formed?

$A = \pi r^2$

$26 = \pi r^2$

$r^2 = \frac{26}{\pi}$

$r = \sqrt{\frac{26}{\pi}}$

TRIPLE THE RADIUS

$r = 3\sqrt{\frac{26}{\pi}}$

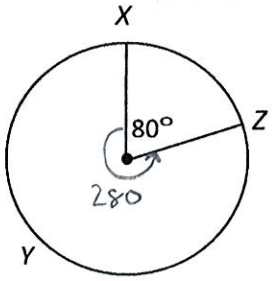
$A = \pi\left(3\sqrt{\frac{26}{\pi}}\right)^2$

$= \pi\left[9\left(\frac{26}{\pi}\right)\right]$

$= 234 \text{ ft}^2$

Given: $\overset{\frown}{XYZ}$ = 140 in

Find the radius



$\frac{AL}{CIRC} = \frac{m\overset{\frown}{}}{360}$

$\frac{140}{x} = \frac{280}{360}$

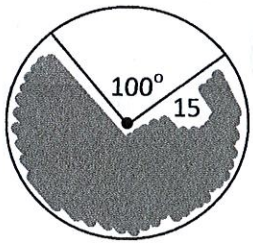
$280x = 50400$

$x = 180$

$180 = 2\pi r$

$r = \frac{180}{2\pi} = \frac{90}{\pi}$

Find the area of the shaded region:



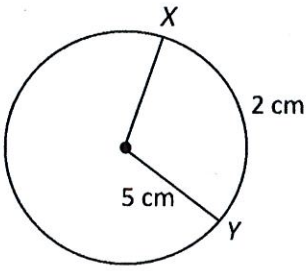
$\frac{A_{SEC}}{A_{CIRC}} = \frac{m\overset{\frown}{}}{360}$

$\frac{x}{225\pi} = \frac{260}{360}$

$360x = 58500\pi$

$x = \frac{325\pi}{2}$

Find m$\overset{\frown}{XY}$



$\frac{AL}{CIRC} = \frac{m\overset{\frown}{}}{360}$

$\frac{2}{10\pi} = \frac{x}{360}$

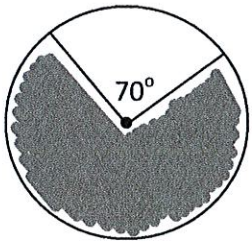
$10\pi x = 720$

$x = \frac{720}{10\pi}$

$= 72/\pi$

Given: Area of shaded region = 28π mm^2

Find the radius of the circle



$\frac{A_{SEC}}{A_{CIRC}} = \frac{m\overset{\frown}{}}{360}$

$\frac{28\pi}{\pi r^2} = \frac{290}{360}$

$\frac{28}{r^2} = \frac{29}{36}$

$29r^2 = 1008$

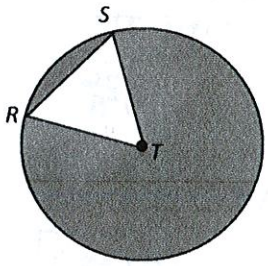
$r^2 = \frac{1008}{29}$

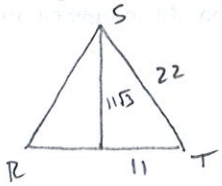
$r = \sqrt{\frac{1008}{29}} \approx 5.896$

Unit 6 Test Review

Given: ΔRST is equilateral with altitude = $11\sqrt{3}$

Find the area of the shaded region





$A_{CIRCLE} = \pi(22)^2$

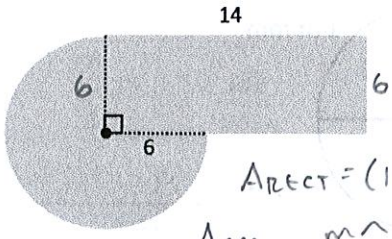
$= 484\pi$

$A_{TRI} = \frac{1}{2}(22)(11\sqrt{3})$

$= 121\sqrt{3}$

$A_{SHADED} = A_{CIR} - A_{TRI} = 484\pi - 121\sqrt{3}$

Find the area of the following figure



$A_{RECT} = (14)(6) = 84$

$\frac{A_{SEC}}{A_{CIR}} = \frac{m\widehat{\ }}{360}$

$\frac{x}{36\pi} = \frac{270}{360}$

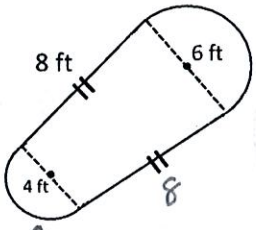
$\frac{x}{36\pi} = \frac{3}{4}$

$4x = 108\pi$

$x = 27\pi$

$A = 84 + 27\pi$

Find the Perimeter of the figure



$\frac{1}{2}C$

$= \frac{1}{2}(2\pi r)$

$= \pi r$

$= 3\pi$

$\frac{1}{2}C$

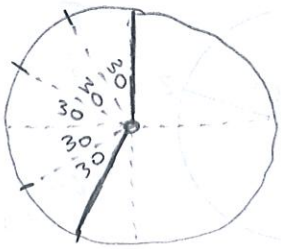
$= \frac{1}{2}(2\pi r) = \pi r$

$= 2\pi$

$PERIMETER = 8 + 3\pi + 8 + 2\pi$

$= 16 + 5\pi$

A clock on the wall has a radius of 5 inches. If it is 3:35 pm, what distance does the minute hand need to travel before it hits 4:00pm?



$\frac{AL}{CIRC} = \frac{m\widehat{\ }}{360}$

$\frac{x}{10\pi} = \frac{150}{360}$

$360x = 1500\pi$

$x = \frac{25\pi}{6}$