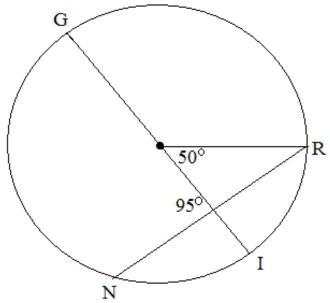
Circles Review Practice Test

Circles Review Test 2017

1)

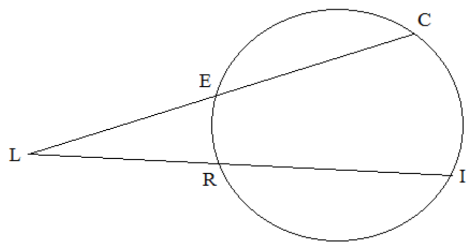


What is $m\widehat{IN}$?

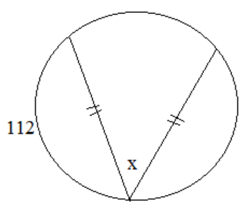
2) $\widehat{RI} + \widehat{CE} = 210$

$\angle L = 34$

Find $\widehat{CI}$ and $\widehat{ER}$



3)

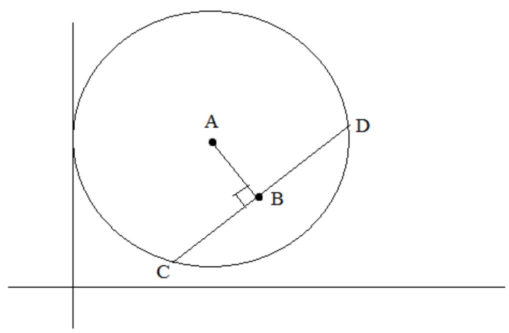


What is x?

4) A (7, 9)

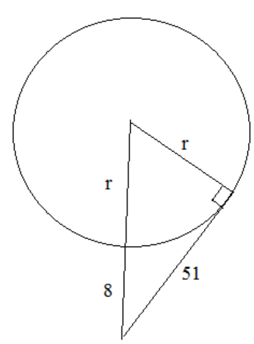
B (10, 5)

Find the length of $\overline{CD}$



5) A point is 8 units from a circle..

If the point to a point of tangency is 51 units, what is the radius of the circle?



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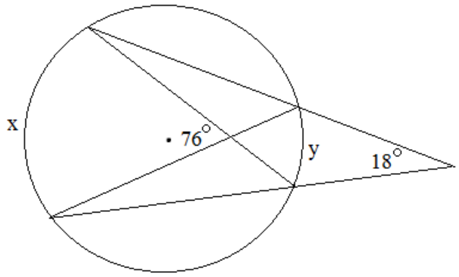
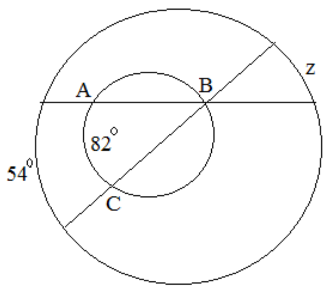
6)



Can you determine x and y?

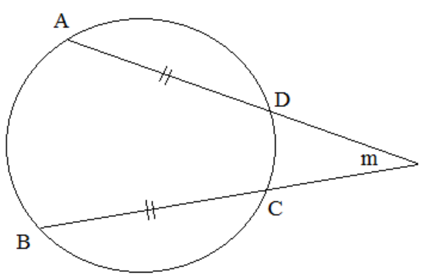
7)



arc AC = 82 degrees

Find the measure of arc z

8)

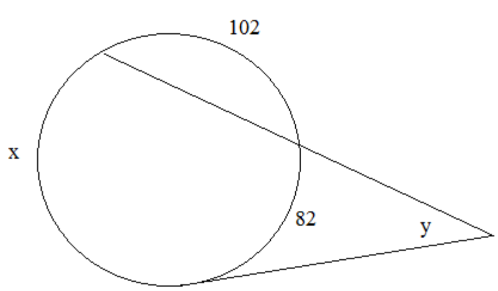


$\overline{AD} = \overline{BC}$

$\overset{\frown}{ABC} = 210$

Find angle m

9)



Find x and y.

10) The distance from the center of a circle to a 16" chord is 6".
What is the diameter of the circle?

11) The distance from the center of a circle to a 6" chord is 16".
What is the circumference of the circle?

12) $\overline{PS}$ is tangent to circle C

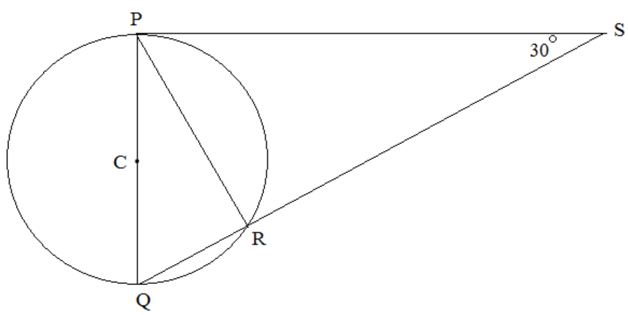
$\overline{PQ} = 20$

$\angle S = 30^{\circ}$

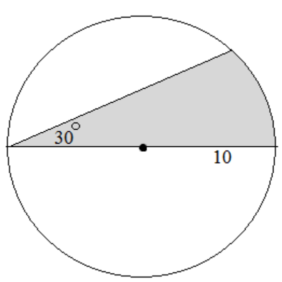
PS = ________

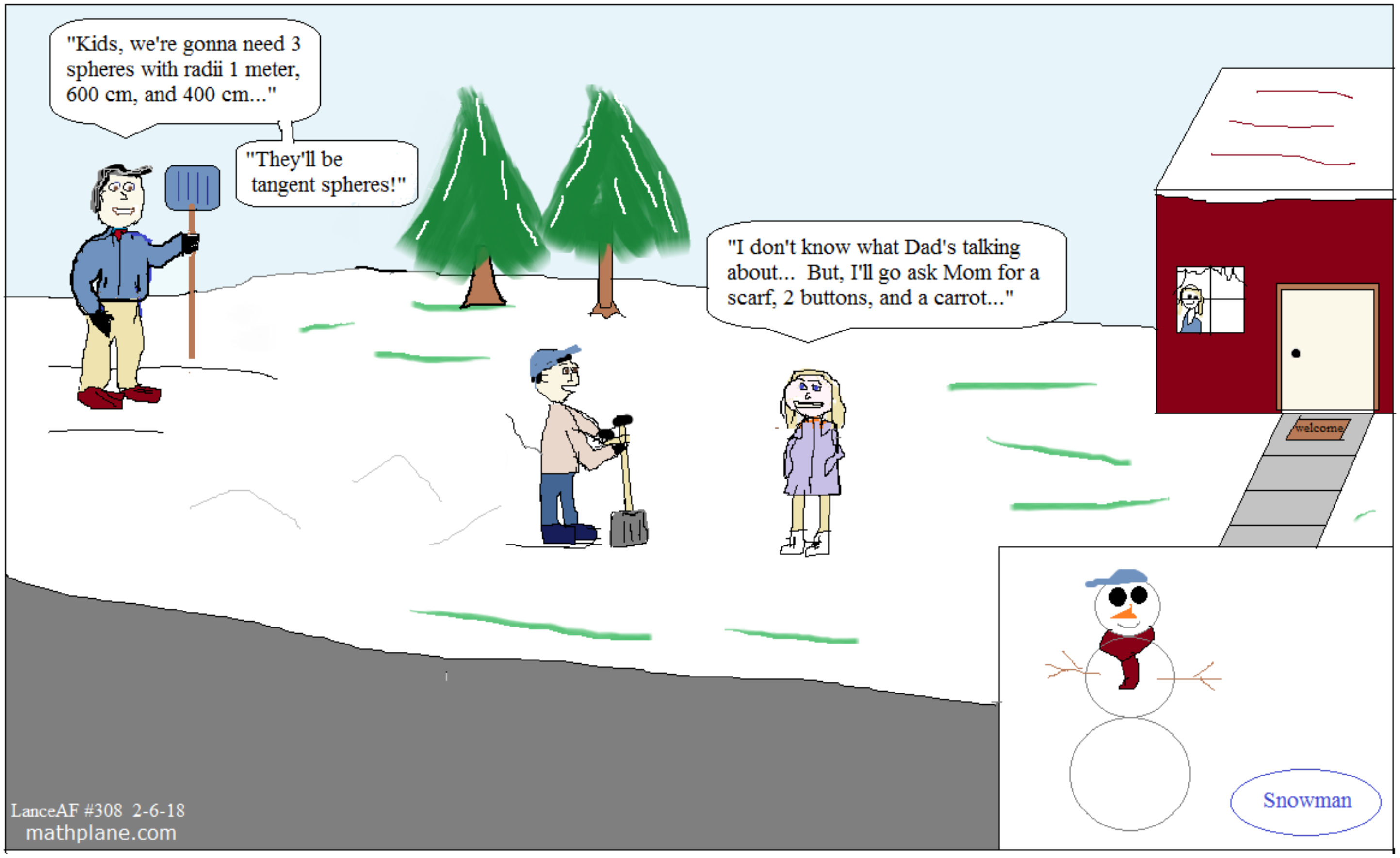
QR = ________

RS = ________



13) What is the shaded area?



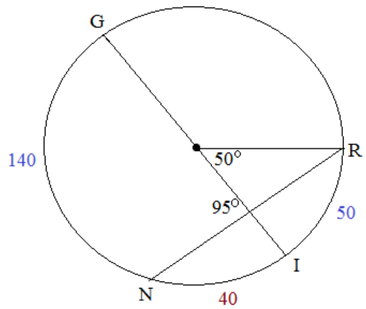

"Kids, we're gonna need 3 spheres with radii 1 meter, 600 cm, and 400 cm..."
"They'll be tangent spheres!"
"I don't know what Dad's talking about... But, I'll go ask Mom for a scarf, 2 buttons, and a carrot..."
welcome
Snowman
LanceAF #308 2-6-18
mathplane.com

Answers--→

Circles Review Test 2017

SOLUTIONS

1)



What is $m\widehat{IN}$?

RI is 50 (central angle is 50)

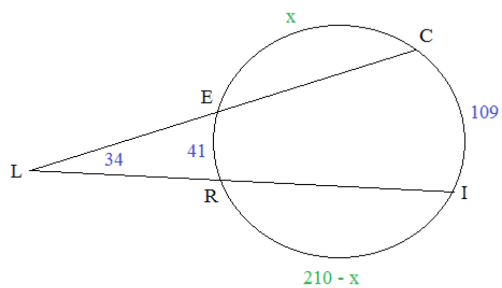
GN is 140 ((GN + RI)/2 = 95 Chord-Chord theorem)

$\boxed{\text{IN must be 40}}$ (GNI is semicircle)

2) $\widehat{RI} + \widehat{CE} = 210$

$\angle L = 34$

Find $\widehat{CI}$ and $\widehat{ER}$



$CI + ER = 150$ because $CE + RI = 210$

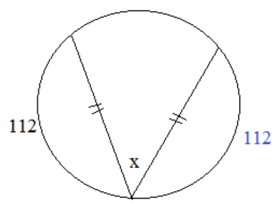
$\frac{1}{2}(CI - ER) = 34$

$CI - ER = 68$

$2CI = 218$

$\boxed{CI = 109 \quad ER = 41}$

3)



What is x?

$112 + 112 + ? = 360$

136 therefore $\boxed{x = 68}$

4) A (7, 9)

B (10, 5)

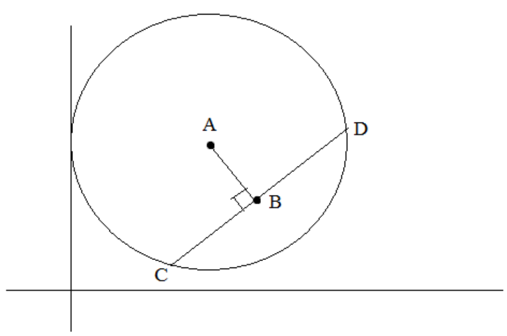
Find the length of $\overline{CD}$

step 1: Distance from A to B 5

step 2: Radius of circle is 7

step 3: Pythagorean theorem to get 1/2 chord $\sqrt{24}$

step 4: double it to get chord CD $\boxed{4\sqrt{6}}$



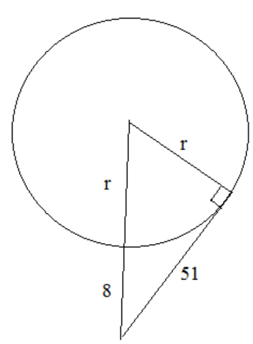
5) A point is 8 units from a circle..
If the point to a point of tangency is 51 units, what is the radius of the circle?

$r^2 + 51^2 = (8 + r)^2$

$r^2 + 2601 = 64 + 16r + r^2$

$2537 = 16r$

$\boxed{r = 158.6}$

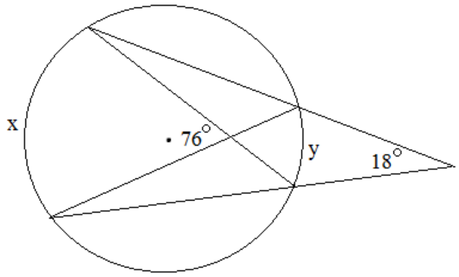


$158.6^2 + 51^2 = 166.6^2$

Circles Review Test 2017

SOLUTIONS

6)



external angle: (secant-secant) $\frac{x - y}{2} = 18$ $x - y = 36$

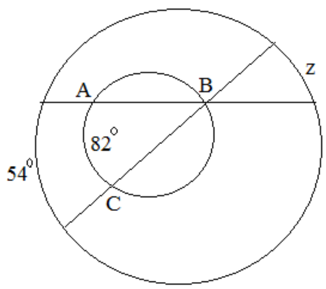
internal angle: (chord-chord) $\frac{x + y}{2} = 76$ $x + y = 152$

Using combination/elimination method to solve system:

$2x = 188$

$\boxed{x = 94}$ then, $\boxed{y = 58}$

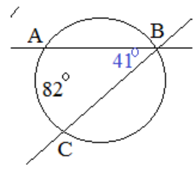
7)



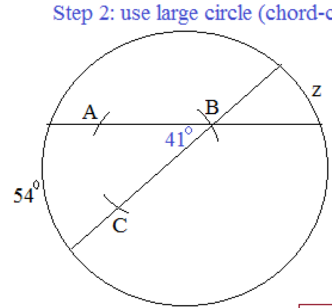
arc AC = 82 degrees

Find the measure of arc z

Step 1: Use small circle (inscribed angle)

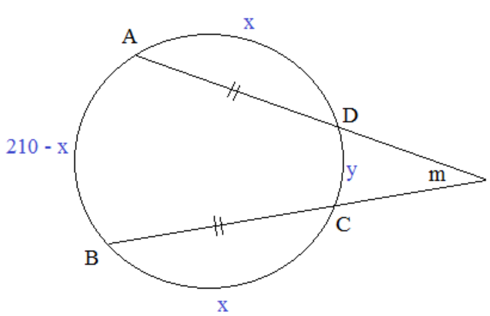


Step 2: use large circle (chord-chord)



$(54 + z)/2 = 41$ therefore, $\boxed{z = 28}$

8)



$\overline{AD} = \overline{BC}$

$\overset{\frown}{ABC} = 210$

Find angle m

$360 = 2x + y + (210 - x)$

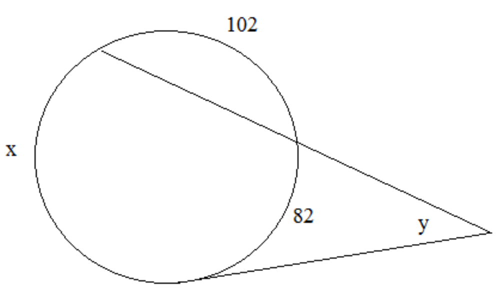
$150 = x + y$

$y = 150 - x$

$\frac{(210 - x) - (150 - x)}{2} = m$

$\boxed{m = 30 \text{ degrees}}$

9)



$x + 102 + 82 = 360$

$\boxed{x = 176}$

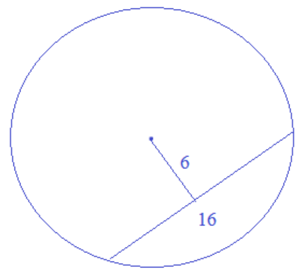
$1/2(176 - 82) = \boxed{47 = y}$

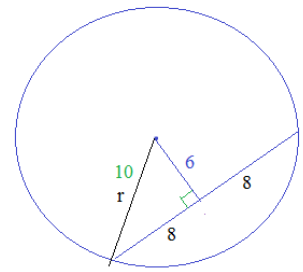
SOLUTIONS

10) The distance from the center of a circle to a 16" chord is 6". What is the diameter of the circle?

radius = 10

$\boxed{\text{diameter} = 20''}$



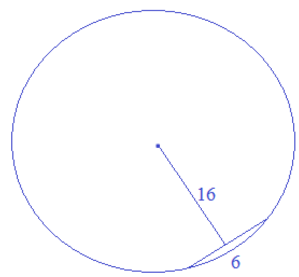


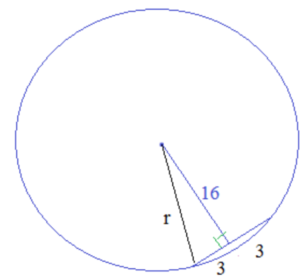
11) The distance from the center of a circle to a 6" chord is 16". What is the circumference of the circle?

(using Pythagorean Theorem)

radius = $\sqrt{264}$ = $2\sqrt{66}$

circumference = 2π (radius) = $\boxed{4\sqrt{66}\,\pi\,''}$



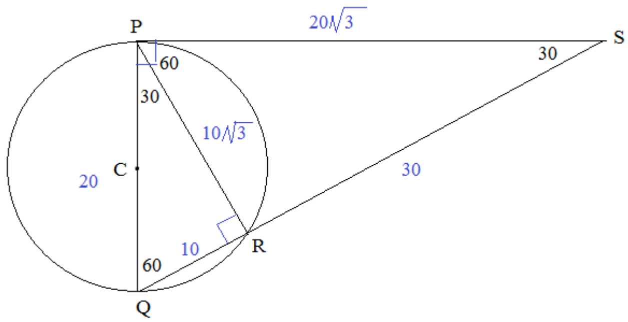


12) $\overline{PS}$ is tangent to circle C

$\overline{PQ} = 20$

$\angle S = 30^\circ$

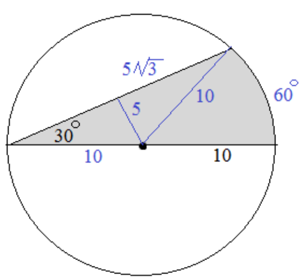
PS =	$20\sqrt{3}$
QR =	10
RS =	30



SPC is right angle
(tangent-radius theorem)

PRQ is right angle
(inscribed angle.. Also,
triangle inscribed in semicircle)

13) What is the shaded area?



sector area is $\frac{60}{360}\pi(10)^2 = \frac{50}{3}\pi$

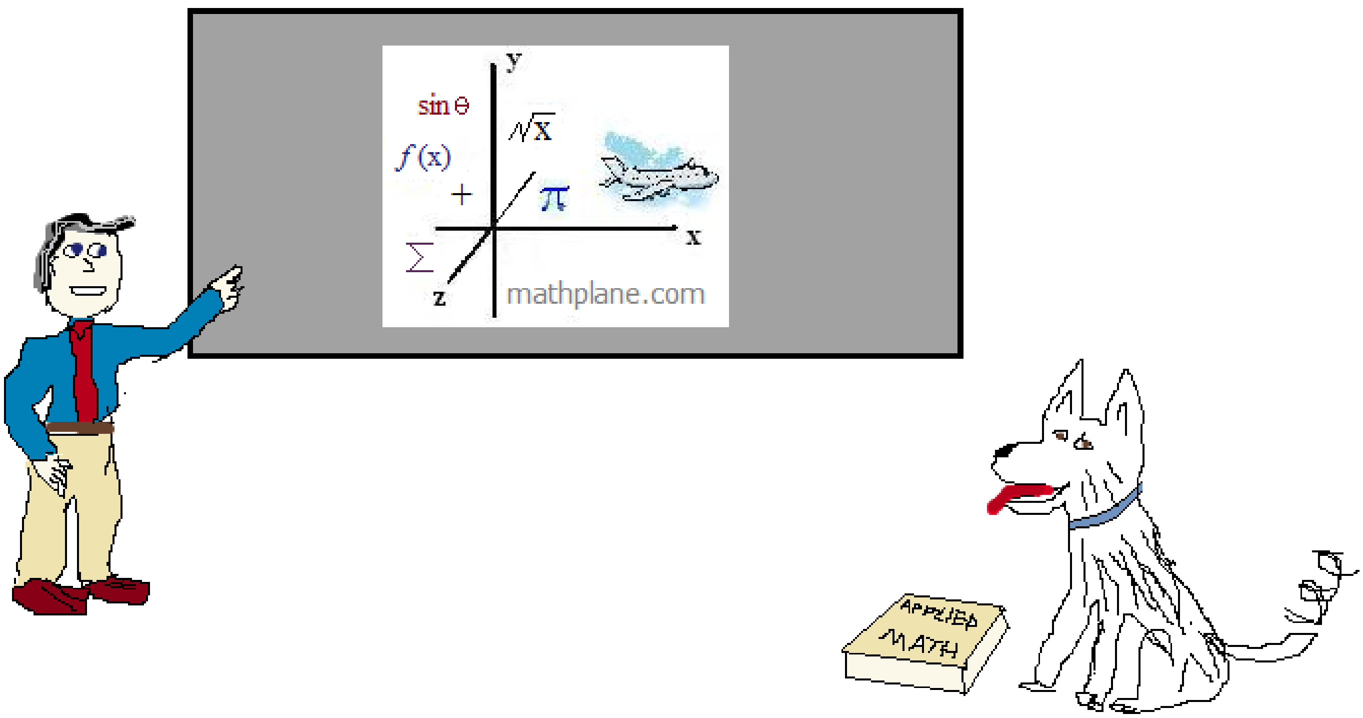
triangle area is $\frac{1}{2}(10\sqrt{3})(5) = 25\sqrt{3}$

total: $\boxed{\frac{50}{3}\pi + 25\sqrt{3}}$

Thanks for visiting. (Hope it helped!)

If you have questions, suggestions, or requests, let us know.

Cheers



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