Geometry A
Unit 8 Review Puzzles

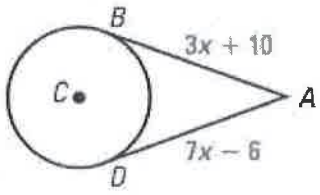
Name: Key
Date: _____ Period: _____

Riddle:

What did the banana do when it saw the monkey?

Directions: Solve each problem below. Match your answer to a letter in the Key. Then write the letter in the space above its problem number to find the answer to the riddle.

1 Please solve for x.

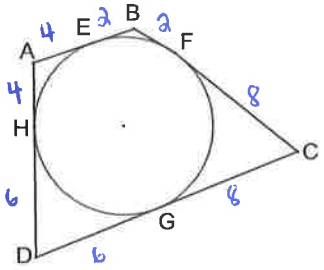


$3x+10=7x-6$

$16=4x$

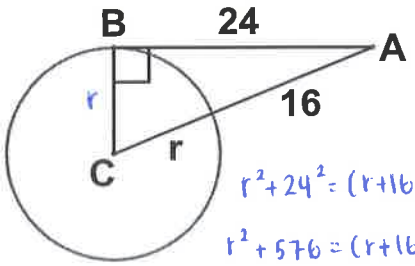
$x=4$

2 Given all segments shown are tangent and AE = 4, BC = 10, GC = 8, and DC = 14. Please find the perimeter of ABCD.



$P=40$ units

3 Please solve for the radius of $\odot C$.



$r^2+24^2=(r+16)^2$

$r^2+576=(r+16)(r+16)$

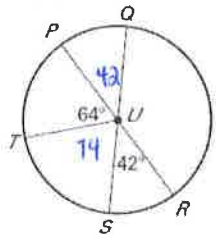
$r^2+576=r^2+32r+256$

$576=32r+256$

$32r=320$

$r=10$

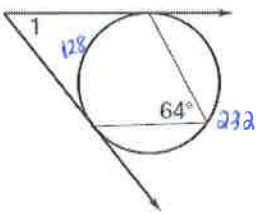
4 Please find $m\overset{\frown}{TQ}$.



$m\overset{\frown}{TQ}=64+42$

$m\overset{\frown}{TQ}=106°$

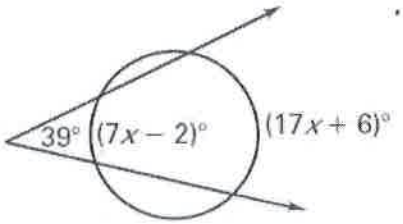
5 Please find $m\angle 1$.



$m\angle 1=\frac{1}{2}(232-128)$

$m\angle 1=52°$

6 Please solve for x.



$39=\frac{1}{2}(17x+6-(7x-2))$

$39=\frac{1}{2}(17x+6-7x+2)$

$39=\frac{1}{2}(10x+8)$

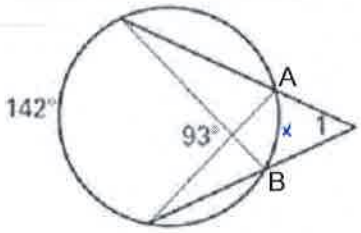
$78=10x+8$

$70=10x$

$x=7$

7 Please find $m\angle 1$.

(Hint: Find $m\overset{\frown}{AB}$ first!)



$93 = \frac{1}{2}(x+142)$

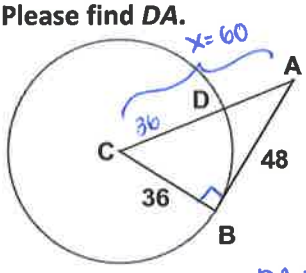
$186 = x+142$

$x = 44$

$m\angle 1 = \frac{1}{2}(142-44)$

$m\angle 1 = 49°$

8 Given that $\overline{AB}$ is tangent to $\odot C$, Please find DA.



$36^2 + 48^2 = x^2$

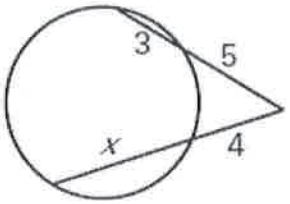
$3600 = x^2$

$x = 60$

$DA = 60 - 36$

$DA = 24$

9 Please solve for x.



$5(5+3) = 4(4+x)$

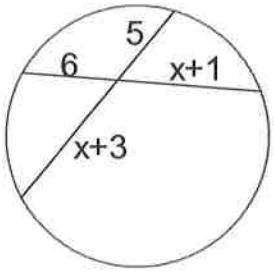
$5(8) = 16+4x$

$40 = 16+4x$

$24 = 4x$

$x = 6$

10 Please solve for x.



$5(x+3) = 6(x+1)$

$5x+15 = 6x+6$

$15 = x+6$

$x = 9$

Key

2 ..... E	10 ..... A	49 ..... N
7 L	24 ..... N	106 I
9 ..... A	117.5 ..... F	40 ..... P
42 ..... G	4 ..... A	3.75 ..... K
6 ..... T	128 .....O	52 ..... S

Riddle answer:

The b A (1) N (7) A (10) N (8) A (3) S (5) P (2) L (6) I (4) T (9)!

What's the Quickest Way for an Ant to Go From the Ground to the Tree Trunk?

Directions: Solve each problem below. Find your solution in the answer column and notice the letter next to it. Write this letter in each box that contains the number of that problem.

1 Please solve for x.

$(3x)(3x) = 2x(2x+10)$

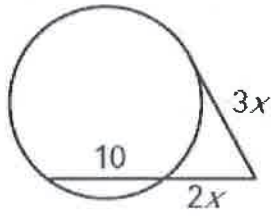
$9x^2 = 4x^2 + 20x$

$5x^2 - 20x = 0$

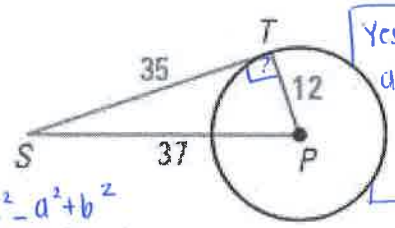
$5x(x-4) = 0$

$5x = 0 \quad x-4=0$

$x \neq 0, \quad x = 4$



2 Please determine if $\overline{ST}$ is tangent to $\odot P$. Justify your answer.

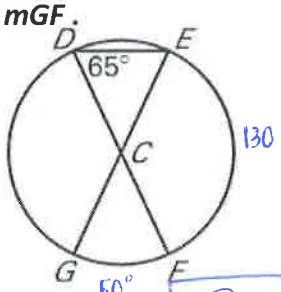


Yes, since $a^2+b^2=c^2$, $\overline{ST}$ is tangent

$c^2 = a^2 + b^2$

$37^2 = 12^2 + 35^2 \Rightarrow 1369 = 1369$

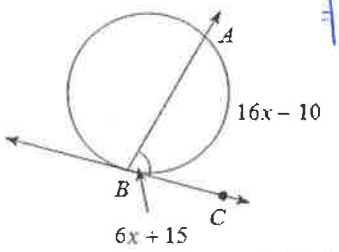
3 Given $\odot C$, please find $m\overset{\frown}{GF}$.



$m\overset{\frown}{GF} = 50°$

4 Please find $m\angle ABC$

$6(10) + 15 = 75°$



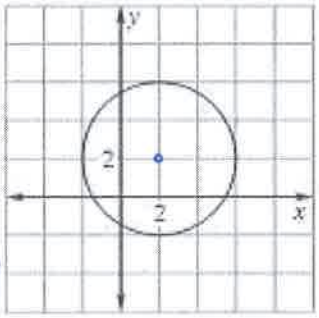
$2(6x+15) = 16x - 10$

$12x + 30 = 16x - 10$

$40 = 4x$

$x = 10$

5 Please write the standard equation for the circle below:



Center (2, 2)

radius = 4

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

$(x-2)^2 + (y-2)^2 = 16$

6 Please write the standard equation for a circle centered at the origin with a radius of 7.

$(x-0)^2 + (y-0)^2 = 7^2$

$x^2 + y^2 = 49$

7 Please write the standard equation for a circle centered at (1,3) and a point on the circle is (-4, 15)

radius $= \sqrt{(1+4)^2 + (3-15)^2} = \sqrt{(5)^2 + (-12)^2} = \sqrt{169} = 13$

$(x-1)^2 + (y-3)^2 = 13^2 \Rightarrow (x-1)^2 + (y-3)^2 = 169$

8 The diameter of a circle has endpoints A(-1, -1) and B(7, 5). Please write the standard equation for this circle.

diameter $= \sqrt{(7+1)^2 + (5+1)^2} = \sqrt{(8)^2 + (6)^2} = \sqrt{100} = 10$; $r = 5$

center $= \left(\frac{-1+7}{2}, \frac{-1+5}{2}\right) = \left(\frac{6}{2}, \frac{4}{2}\right) = (3, 2)$

Equation: $(x-3)^2 + (y-2)^2 = 25$

Answers

- **B.** $x^2 + y^2 = 14$
- **O.** $x^2 + y^2 = 49$ ✓
- **A.** 50 ✓
- **N.** 10
- **E.** 4 ✓
- **S.** 75 ✓
- **U.** No, ΔPTS is not a right triangle.
- **M.** $(x+1)^2 + (y+1)^2 = 100$
- **H.** Yes, ΔPTS is a right triangle. ✓
- **C.** 150
- **K.** $(x-2)^2 + (y-2)^2 = 16$ ✓
- **T.** $(x-3)^2 + (y-2)^2 = 25$ ✓
- **L.** 130
- **R.** $(x-1)^2 + (y-3)^2 = 169$ ✓

8	3	5	1	8	2	1	4	2	6	7	8	1	4	8	7	6	6	8
T	A	K	E	T	H	E	S	H	O	R	T	E	S	T	R	O	O	T