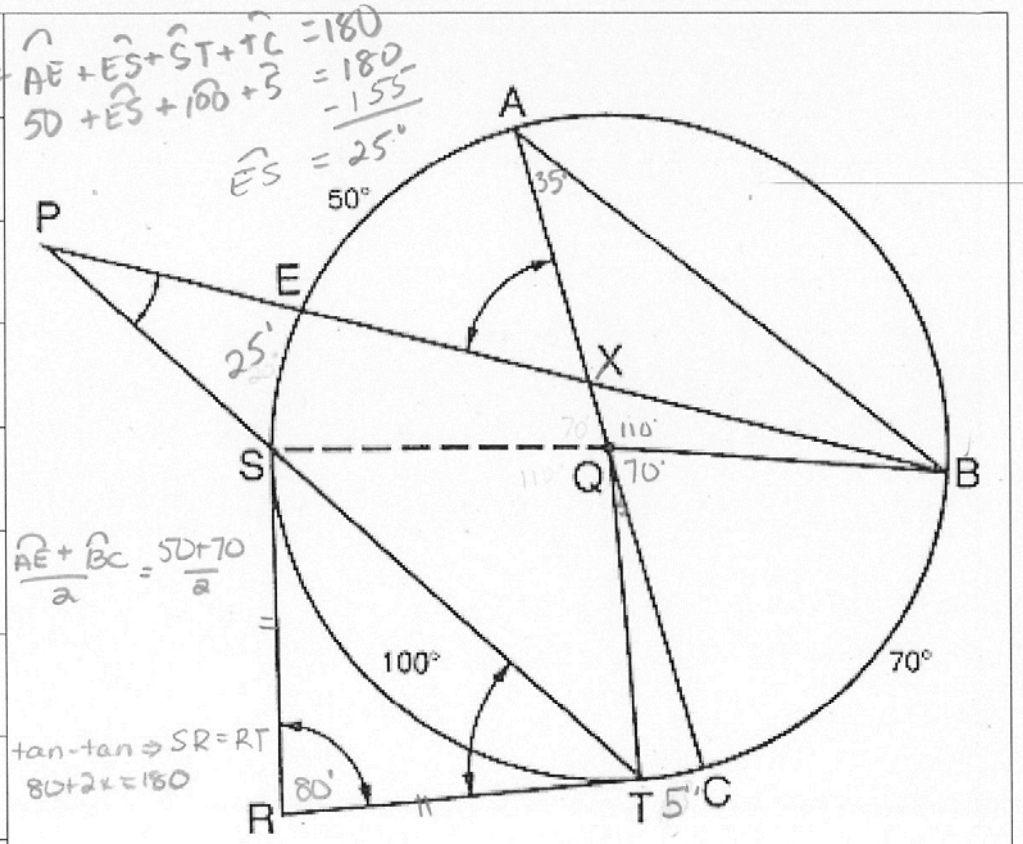
Accelerated Geometry AMDG Name ANSWER KEY Period ___

Chapter 10 Review for the OFE Wednesday, February 03, 2016

Circle S, A or N to tell whether each statement is SOMETIMES, ALWAYS or NEVER true.

Problems 1-9. Given $\odot O$, $\overline{RT}$ and $\overline{SR}$ are tangents, $\overline{AC}$ is a diameter, $\overset{\frown}{AE}$ is 50°, $\overset{\frown}{ST}$ is 100°, $\overset{\frown}{TC}$ is 5°, m∠CQB is 70°.

1. Find m $\overset{\frown}{ES}$	25
2. Find m∠R	80
3. Find m∠P	25
4. Find m∠AQB	110°
5. Find m∠XAB	35°
6. Find m∠AXE	60
7. Find m∠SQT	100
8. Find m∠STR	50°
9. Find m arc{BA}	110



$\overset{\frown}{AE} + \overset{\frown}{ES} + \overset{\frown}{ST} + \overset{\frown}{TC} = 180$

$50 + \overset{\frown}{ES} + 100 + 5 = 180$

$-155 \quad -155$

$\overset{\frown}{ES} = 25°$

$\frac{\overset{\frown}{AE} + \overset{\frown}{BC}}{2} = \frac{50+70}{2}$

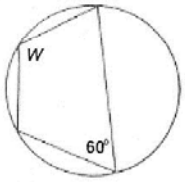
$=$

tan-tan ⇒ SR = RT

$80 + 2x = 180$

Problem 10 a-d. Show work where needed. Place your answer in the blank. (3 points each; 12 total.)

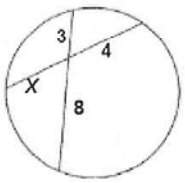
W:	120°
X:	6
Y:	13
Z:	5



opp∠s inscquad ⇒ supp

$4x = 3 \cdot 8$

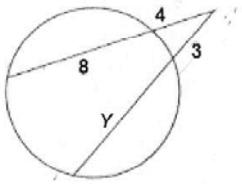
$x = 6$



part·part

$4(12) = 3(3+y)$

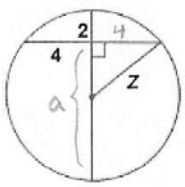
$16 = 3 + y$



out·whole

$4 \cdot 4 = 2 \cdot a$

$8 = a$



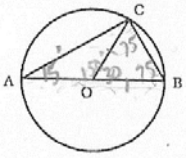
$d = 10$

$\therefore z = 5$

Problems 11-22. Show work where needed. Place your answer in the left-most column. (6 points each.)

11. 15°

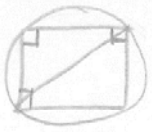
⊙O
∠OCB = 75°
Find the measure of ∠A.



$\angle OCB \cong \angle OBC$ (isos $\Rightarrow \angle$s)
$\angle COB = 30°$ (total 180)
supp $\angle COB = \angle COA \Rightarrow 150°$
$\angle A \cong \angle ACO$ (isos $\Rightarrow \triangle$s)

12. $17\sqrt{2}$

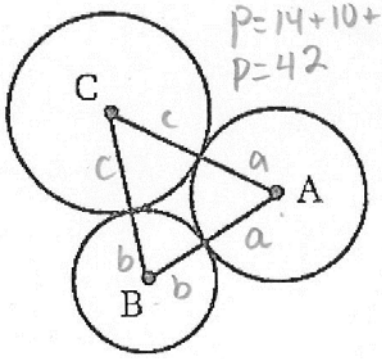
A square with an area of 289 is inscribed in a circle. Find the diameter of the circle.



$s = 17$
use 45-45-90 $17\sqrt{2}$

13. 11

Given AC = 14, AB = 10, and CB = 18. Find the length of the radius of the largest circle.



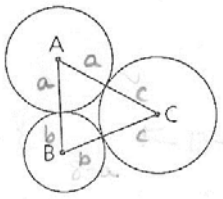
$p = 14+10+18$
$p = 42$

$2(a+b+c) = 42$
$a+b+c = 21$
$10 + c = 21$
$c = 11$

or $a+c+b = 21$
$14 + b = 21$
$b = 7$
$a+b+c = 21$
18
$a = 3$

14. $a = 3$, $b = 5$, $c = 8$

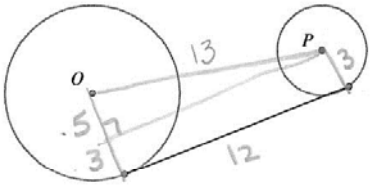
Given: Tangent ⊙ A, B, and C,
AB = 8, BC = 13, AC = 11
Find: The radii of the three ⊙ (Hint: This is a walk-around problem.)



$a + b = 8$
$b + c = 13$
$a + c = 11$
$p = 8+13+11 = 32$
$a+b+c = 16$
$c = 8$, $b = 5$

15. $\overline{OP} = 13$

⊙O with radius 8, ⊙P with radius 3. The length of the common external tangent segment is 12. Find the distance between the two circles. (betw the centers).

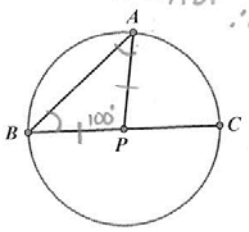


$OP = 13$

16. $5/18$

It is given that ∠BAP = 40°. If a point is chosen at random on ⊙P, what is the probability that it is on $\overset{\frown}{AB}$?

$\cong \angle ABP$

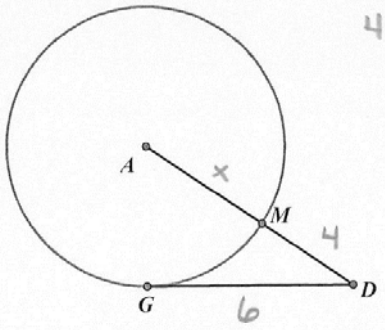


$\therefore \angle APB = 100°$
cent∠ = arc $\therefore \overset{\frown}{AB} = 100°$

$\frac{\overset{\frown}{AB}}{\odot P} = \frac{100°}{360} = \frac{5}{18}$

17. Find the length of the radius of $\odot A$ if MD = 4 & DG = 6.

5

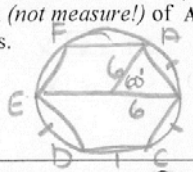


$4(x+4) = 6^2$

$x+4 = 9$

18. Find the exact length *(not measure!)* of $\overset{\frown}{ACE}$ if regular hexagon ABCDEF is inscribed in a circle with diameter of 12 inches.

8π



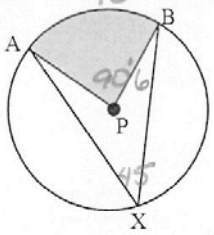
$m\overset{\frown}{ACE} = 4(\overset{\frown}{AB})$

$= 4(60°) = 240°$

length $= (240/360)\,\pi\,12 = \frac{2}{3}12\pi = 8\pi$

19. Find the exact area of ***sector APB*** in $\odot P$ given PB = 6cm and $m\angle AXB = 45°$.

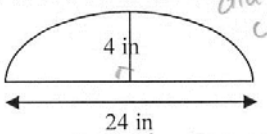
9π



$\frac{1}{4}\pi 6^2 =$

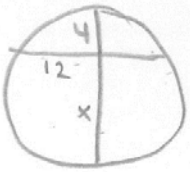
20. An arc above a window is 24 inches wide with a maximum height (mid-span) of 4 inches. Find the radius of the arc.

20



dia ⊥ chd

part · part



$12^2 = 4x$

$36 = x$

$d = 40 \therefore r = 20$

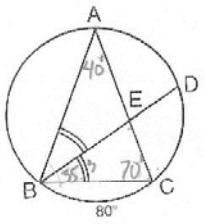
21. Given: $\overline{AB} \cong \overline{AC}$

$\overset{\frown}{BC} = 80°$

$\overrightarrow{BD}$ bis. $\angle ABC$.

Find $m\angle DEC$.

$65°$



$\angle A + \angle ABC + \angle C = 180°$

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

$\angle B \cong \angle C$ ($\triangle \Rightarrow \triangle$)

$40 + 2x = 180$

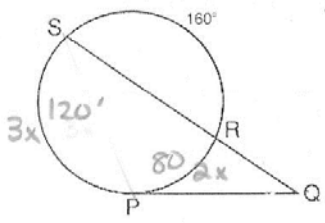
$x = 70°$

$\angle BEC + 35 + 70 = 180$, $\angle BEC = 180 - 115 = 65°$

22. $\overset{\frown}{SP} : \overset{\frown}{PR} = 3:2$

Find $m\angle Q$.

$20°$



$5x + 160 = 360$

$5x = 200$

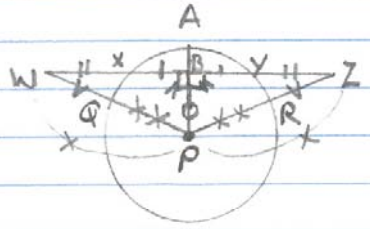
$x = 40$

$\angle Q = \frac{120 - 80}{2} = \frac{40}{2} = 20°$

Ch10 OFE Review

PROOFS

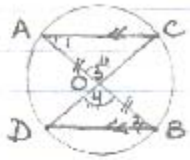
1. G: $\odot P$, $\overline{WX} \cong \overline{YZ}$
   P: $\overline{WQ} \cong \overline{ZR}$



S

1. $\odot P$	1. GIVEN
2. DRAW RADIUS $\overline{PA} \perp$ TO $\overline{WZ}$	2. GIVEN A LINE SEG & A PT NOT ON IT, THERE'S ONLY 1 $\perp$.
3. $\overline{XB} \cong \overline{BY}$	3. RAD $\perp$ CHD $\Rightarrow$ BIS
4. $WX \cong \overline{YZ}$	4. GIVEN
5. $\overline{WB} \cong \overline{BZ}$	5. ADD (3, 4)
6. $\angle WBP$ & $\angle ZBP$ RT $\angle$S	6. $\perp \Rightarrow$ RT $\angle$
7. $\angle WBP \cong \angle ZBP$	7. RT $\angle \Rightarrow \cong \angle$S
8. $\overline{BP} \cong \overline{BP}$	8. Ref
9. $\triangle WBP \cong \triangle ZBP$	9. SAS (5, 7, 8)
10. $\overline{WP} \cong \overline{PZ}$	10. CPCTC (9)
11. $\overline{QP} \cong \overline{PR}$	11. $\odot \Rightarrow \cong$ rad (1)
12. $\overline{WQ} \cong \overline{ZR}$	12. SUBTRACT (9, 10)

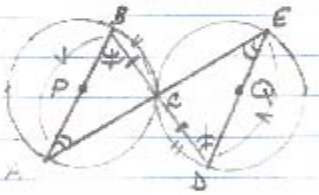
2. G: $\overline{AB}$ diam $\odot O$
$\overline{AC} \parallel \overline{BD}$
C: $\overline{AC} \cong \overline{BC}$



3.

	R
1. DRAW $\overline{OC}$ & $\overline{OD}$	1. AUX
2. $\overline{AB}$ diam $\odot O$, $\overline{AC} \parallel \overline{BD}$	2. GIVEN
3. $\angle 1 \cong \angle 2$	3. $\parallel \Rightarrow$ ALT INT $\angle$s $\cong$ (2)
4. $\overline{OA} \cong \overline{OB}$	4. $\odot \Rightarrow \cong$ RADII
5. $\angle 3 \cong \angle 4$	5. Vert $\angle$s $\Rightarrow \cong \angle$s
6. $\triangle CAO \cong \triangle DBO$	6. ASA (3, 4, 5)
7. $\overline{AC} \cong \overline{BD}$	7. CPCTC

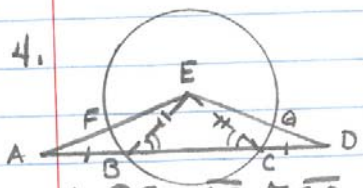
3.



G: $\odot P \cong \odot Q$
$\overline{BC} \cong \overline{CD}$
C: $\angle A \cong \angle E$

1. $\odot P \cong \odot Q$, $\overline{BC} \cong \overline{CD}$	1. GIVEN
2. $\overset{\frown}{BC} \cong \overset{\frown}{CD}$	2. $\cong$ CHDS $\Rightarrow \cong$ ARCS (1)
3. $\angle A \cong \angle E$	3. $\cong$ ARC $\Rightarrow \cong$ INSCR. $\angle$S (2)

4.

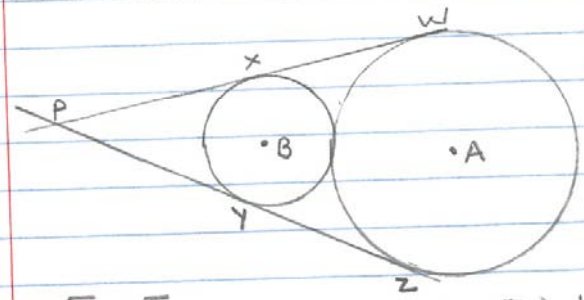


G: $\odot E$, $\overline{AB} \cong \overline{CD}$

C: $\angle A \cong \angle E$

1. $\odot E$, $\overline{AB} \cong \overline{CD}$	1. GIVEN
2. DRAW $\overline{EB}$ & $\overline{EC}$	2. AUX
3. $\overline{EB} \cong \overline{EC}$	3. $\odot \Rightarrow \cong$ RADII
4. $\angle EBC \cong \angle ECB$	4. $\triangle\triangle \Rightarrow \triangle\triangle$
5. $\angle ABE$ supp $\angle EBC$ & $\angle DCE$ supp $\angle ECB$	5. st $\angle \Rightarrow$ supp $\angle$
6. $\angle ABE \cong \angle ECD$	6. $\angle$s supp $\cong \angle$s $\Rightarrow \cong \angle$s
7. $\triangle ABE \cong \triangle DCE$	7. SAS (3,6,1)
8. $\angle A \cong \angle D$	8. CPCTC

5.



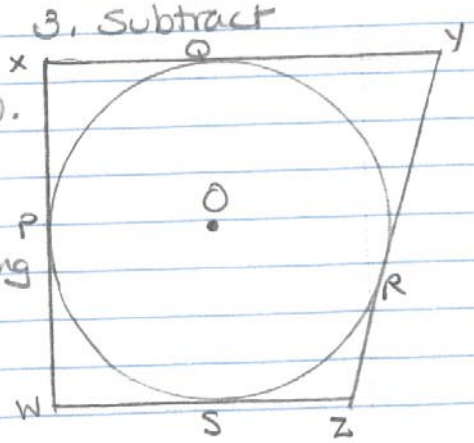
G: $\overline{PW}$ & $\overline{PZ}$ common tan's to ⓢ A & B at W, X, Y, & Z

P: $\overline{XW} \cong \overline{YZ}$

1. $\overline{PW}$ & $\overline{PZ}$ are common tangents to ⓢ A & B at W, X, Y, & Z	1. Given
2. $\overline{PW} \cong \overline{PZ}$ & $\overline{PX} \cong \overline{PY}$	2. two-tan thm
3. $\overline{XW} \cong \overline{YZ}$	3. Subtract

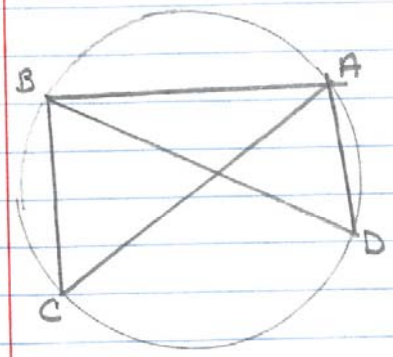
6. G Quad WXYZ circumscribed $\odot O$.

P: $m\overline{XY} + m\overline{WZ} = m\overline{WX} + m\overline{YZ}$



1. $\overline{XQ} \cong \overline{XP}$, $\overline{YQ} \cong \overline{YR}$, $\overline{WP} \cong \overline{WS}$, & $\overline{ZS} \cong \overline{ZR}$	1. GIVEN
2. $XY + WZ = WX + YZ$	2. Two-tang
	3. Add

7.

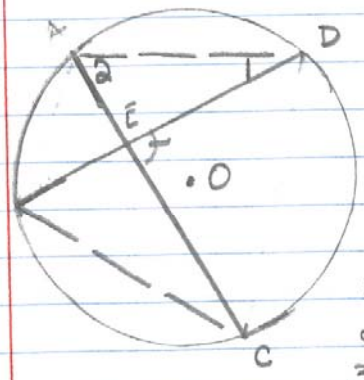


G: $\overset{\frown}{BC} \cong \overset{\frown}{CD}$

P: $\triangle ABC \sim \triangle BAD$

1. $\overset{\frown}{BC} \cong \overset{\frown}{CD}$	1. Given
2. $\angle BAC \cong \angle DBA$	2. $\cong \overset{\frown}{} \Rightarrow \cong$ inscr $\angle$s
3. $\angle C \cong \angle D$	3. same $\overset{\frown}{} \Rightarrow$ $\cong$ unscrib $\angle$
4. $\triangle ABC \sim \triangle BAD$	4. AA~

8.



G: $\odot O$, $\overline{AC} \cap \overline{BD} = E$

P: a) $m\overset{\frown}{AB} + m\overset{\frown}{CD} = 2\, m\angle CED$

b) $AE \cdot EC = BE \cdot ED$

1. $\odot O$, $\overline{AC} \cap \overline{BD} = E$	1. Given
2. Draw $\overline{AB}$ & $\overline{CD}$	2. Aux
3. $\angle 1 = \frac{1}{2}\overset{\frown}{AB}$	3. unscrib $\angle \Rightarrow$ $\frac{1}{2}$ arc
$\angle 2 = \frac{1}{2}\overset{\frown}{DC}$	
4. $\angle 1 + \angle 2 = \angle CED$	4. m Ext $\angle$ = sum remote int $\angle$s
5. $\angle CED = \frac{1}{2}(\overset{\frown}{AB} + \overset{\frown}{CD})$	5. Substitute