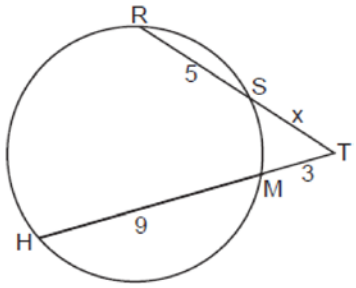
G.C.A.2: Chords, Secants and Tangents 7

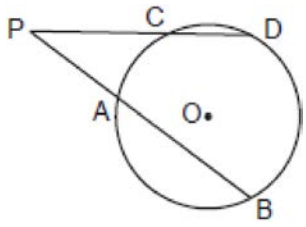
1 In the circle below, secants $\overline{TSR}$ and $\overline{TMH}$ intersect at T, $SR = 5$, $HM = 9$, $TM = 3$, and $TS = x$.



Which equation could be used to find the value of x?

1) $x(x + 5) = 36$
2) $x(x + 5) = 27$
3) $3x = 45$
4) $5x = 27$

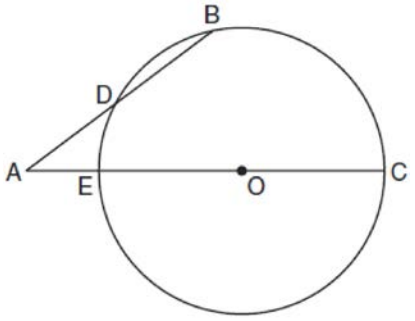
2 In the accompanying diagram, $\overline{PAB}$ and $\overline{PCD}$ are secants drawn to circle O, $PA = 8$, $PB = 20$, and $PD = 16$.



What is PC?

1) 6.4
2) 10
3) 12
4) 40

3 In the diagram below of circle O, secant $\overline{AB}$ intersects circle O at D, secant $\overline{AOC}$ intersects circle O at E, $AE = 4$, $AB = 12$, and $DB = 6$.



(Not drawn to scale)

What is the length of $\overline{OC}$?

1) 4.5
2) 7
3) 9
4) 14

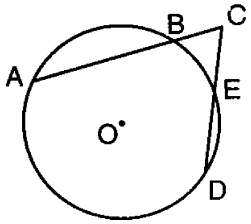
4 Secants $\overline{JKL}$ and $\overline{JMN}$ are drawn to circle O from an external point, J. If $JK = 8$, $LK = 4$, and $JM = 6$, what is the length of $\overline{JN}$?

1) 16
2) 12
3) 10
4) 8

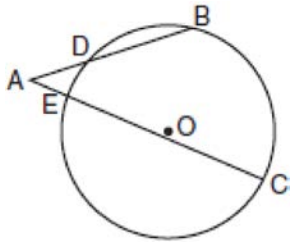
5 In circle O, secants $\overline{ADB}$ and $\overline{AEC}$a re drawn from external point A such that points D, B, E, and C are on circle O. If $AD = 8$, $AE = 6$, and EC is 12 more than BD, the length of $\overline{BD}$ is

1) 6
2) 22
3) 36
4) 48

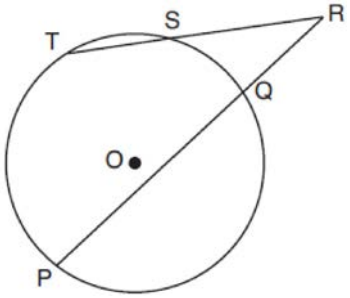
6 In the accompanying diagram of circle O, secant $\overline{CBA}$ and $\overline{CED}$ intersect at C. If $AC = 12$, $BC = 3$, and $DC = 9$, find EC.



7 In the accompanying diagram, secant $\overline{AB}$ intersects circle O at D, secant $\overline{AC}$ intersects circle O at E, $AE = 4$, $AC = 24$, and $AB = 16$. Find AD.

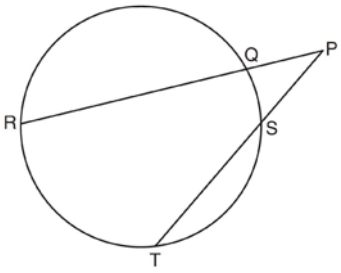


8 In the diagram below, secants $\overline{RST}$ and $\overline{RQP}$, drawn from point R, intersect circle O at S, T, Q, and P.



If $RS = 6$, $ST = 4$, and $RP = 15$, what is the length of $\overline{RQ}$?

9 In the diagram below, secants $\overline{PQR}$ and $\overline{PST}$ are drawn to a circle from point P.



If $PR = 24$, $PQ = 6$, and $PS = 8$, determine and state the length of $\overline{PT}$.

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Answer Section

1 ANS: 1 REF: 082320geo
2 ANS: 2 REF: 080026siii
3 ANS: 2
$(d+4)4 = 12(6)$
$4d + 16 = 72$
$d = 14$
$r = 7$

REF: 061023ge
4 ANS: 1
$12(8) = x(6)$
$96 = 6x$
$16 = x$

REF: 061328ge
5 ANS: 2
$8(x+8) = 6(x+18)$
$8x + 64 = 6x + 108$
$2x = 44$
$x = 22$

REF: 011715geo
6 ANS:
4

REF: 069810siii
7 ANS:
6

REF: 080310siii
8 ANS:
$10 \cdot 6 = 15x$
$x = 4$

REF: 061828geo

9 ANS:

$24 \cdot 6 = w \cdot 8$

$144 = 8w$

$18 = w$

REF: 011533ge