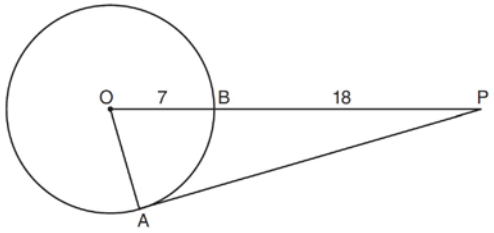
G.C.A.2: Chords, Secants and Tangents 4

1 The angle formed by the radius of a circle and a tangent to that circle has a measure of
1) 45° 2) 90° 3) 135° 4) 180°

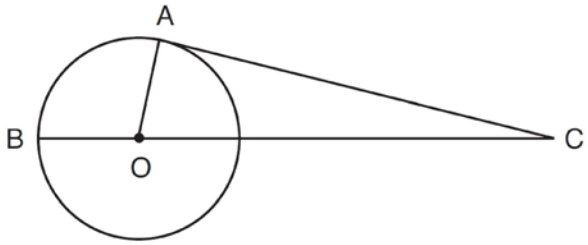
2 Line segment AB is tangent to circle O at A. Which type of triangle is always formed when points A, B, and O are connected?
1) right 2) obtuse 3) scalene 4) isosceles

3 In the diagram below of $\triangle PAO$, $\overline{AP}$ is tangent to circle O at point A, $OB = 7$, and $BP = 18$.



What is the length of $\overline{AP}$?
1) 10 2) 12 3) 17 4) 24

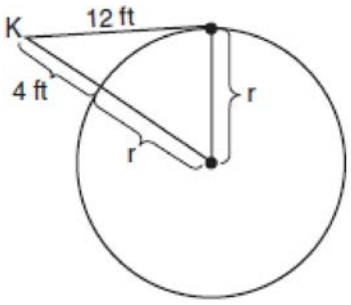
4 In the diagram below of circle O with radius $\overline{OA}$, tangent $\overline{CA}$ and secant $\overline{COB}$ are drawn.



(Not drawn to scale)

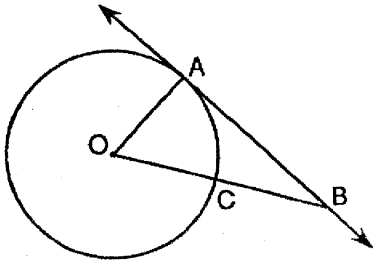
If $AC = 20$ cm and $OA = 7$ cm, what is the length of $\overline{OC}$, to the *nearest centimeter*?
1) 19 2) 20 3) 21 4) 27

5 Kimi wants to determine the radius of a circular pool without getting wet. She is located at point K, which is 4 feet from the pool and 12 feet from the point of tangency, as shown in the accompanying diagram.

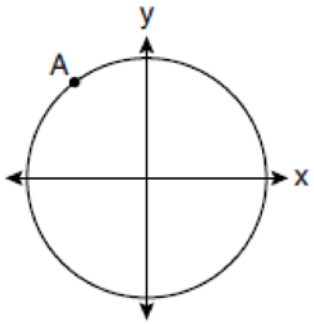


What is the radius of the pool?
1) 16 ft 2) 20 ft 3) 32 ft 4) $4\sqrt{10}$ ft

6 In the accompanying diagram, $\overleftrightarrow{BA}$ is tangent to circle O at A. Radii $\overline{OA}$ and $\overline{OC}$ are drawn, and $\overline{OC}$ is extended to intersect $\overleftrightarrow{BA}$ at B. If $BA = 15$ and $OB = 17$, find the measure of a radius of circle O.



7 A circle centered at the origin passes through $A(-3,4)$.



What is the equation of the line tangent to the circle at A?

1) $y-4=\frac{4}{3}(x+3)$ 2) $y-4=\frac{3}{4}(x+3)$

3) $y+4=\frac{4}{3}(x-3)$ 4) $y+4=\frac{3}{4}(x-3)$

G.C.A.2: Chords, Secants and Tangents 4
Answer Section

1 ANS: 2 REF: 081214ge

2 ANS: 1 REF: 061013ge

3 ANS: 4

$\sqrt{25^2 - 7^2} = 24$

REF: 081105ge

4 ANS: 3

$\sqrt{20^2 + 7^2} \approx 21$

REF: 081525ge

5 ANS: 1

The tangent meets the radius at the point of tangency at 90º.

$$r^2 + 12^2 = (r+4)^2$$
$$r^2 + 144 = r^2 + 8r + 16$$
$$8r = 128$$
$$r = 16$$

REF: 080518b

6 ANS:
8

REF: 089408siii

7 ANS: 2

slope of $\overline{OA} = \frac{4-0}{-3-0} = -\frac{4}{3}$ $m_{\perp} = \frac{3}{4}$

REF: 082223geo