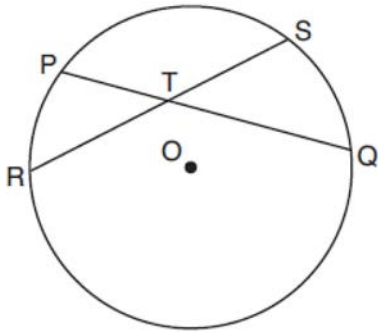


G.C.A.2: Chords, Secants and Tangents 1

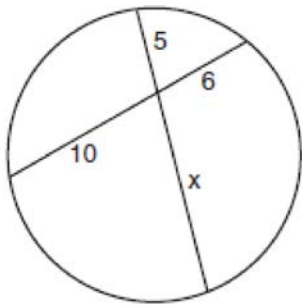
- 1 In the diagram below, chords \overline{PQ} and \overline{RS} of circle O intersect at T .



Which relationship must always be true?

- 1) $RT = TQ$
- 2) $RT = TS$
- 3) $RT + TS = PT + TQ$
- 4) $RT \times TS = PT \times TQ$

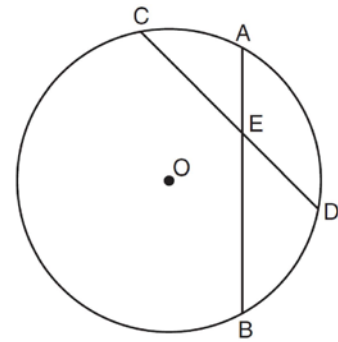
- 2 The accompanying diagram shows two intersecting paths within a circular garden.



What is the length of the portion of the path marked x ?

- 1) $8\frac{1}{3}$
- 2) 11
- 3) 3
- 4) 12

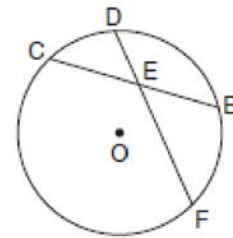
- 3 In the diagram below of circle O , chords \overline{AB} and \overline{CD} intersect at E .



If $CE = 10$, $ED = 6$, and $AE = 4$, what is the length of EB ?

- 1) 15
- 2) 12
- 3) 6.7
- 4) 2.4

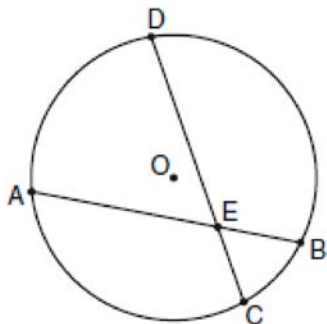
- 4 In the diagram below of circle O , chord \overline{DF} bisects chord \overline{BC} at E .



If $BC = 12$ and FE is 5 more than DE , then FE is

- 1) 13
- 2) 9
- 3) 6
- 4) 4

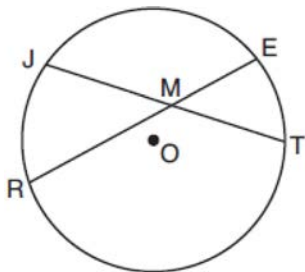
- 5 In the diagram of circle O below, chord \overline{AB} intersects chord \overline{CD} at E , $DE = 2x + 8$, $EC = 3$, $AE = 4x - 3$, and $EB = 4$.



What is the value of x ?

- 1) 1
- 2) 3.6
- 3) 5
- 4) 10.25

- 6 In the diagram below of circle O , chords \overline{JT} and \overline{ER} intersect at M .



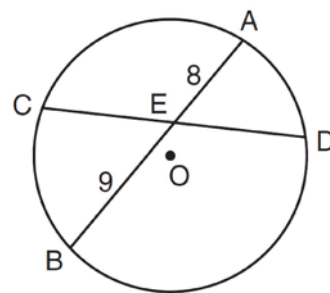
If $EM = 8$ and $RM = 15$, the lengths of \overline{JM} and \overline{TM} could be

- 1) 12 and 9.5
- 2) 14 and 8.5
- 3) 16 and 7.5
- 4) 18 and 6.5

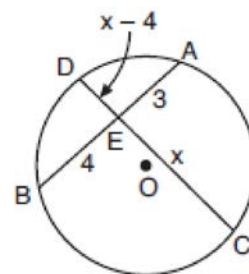
- 7 Chords \overline{AB} and \overline{CD} intersect at point E in a circle with center at O . If $\overline{AE} = 8$, $AB = 20$, and $DE = 16$, what is the length of \overline{CE} ?

- 1) 6
- 2) 9
- 3) 10
- 4) 12

- 8 In the diagram below of circle O , chord \overline{AB} bisects chord \overline{CD} at E . If $AE = 8$ and $BE = 9$, find the length of \overline{CE} in simplest radical form.



- 9 In the accompanying diagram of circle O , chords \overline{AB} and \overline{CD} intersect at E . If $AE = 3$, $EB = 4$, $CE = x$, and $ED = x - 4$, what is the value of x ?



- 10 A toy truck is located within a circular play area. Alex and Dominic are sitting on opposite endpoints of a chord that contains the truck. Alex is 4 feet from the truck, and Dominic is 3 feet from the truck. Meira and Tamara are sitting on opposite endpoints of another chord containing the truck. Meira is 8 feet from the truck. How many feet, to the nearest tenth of a foot, is Tamara from the truck? Draw a diagram to support your answer.

G.C.A.2: Chords, Secants and Tangents 1

Answer Section

1 ANS: 4 REF: 081922geo

2 ANS: 4

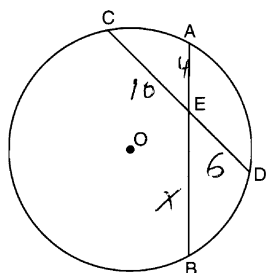
If two chords intersect, the product of the segments of one chord equals the product of the segments of the other

$$\text{chord. } 5x = 10 \times 6$$

$$x = 12$$

REF: 010908b

3 ANS: 1



$$4x = 6 \cdot 10$$

$$x = 15$$

REF: 081017ge

4 ANS: 2

$$6 \cdot 6 = x(x - 5)$$

$$36 = x^2 - 5x$$

$$0 = x^2 - 5x - 36$$

$$0 = (x - 9)(x + 4)$$

$$x = 9$$

REF: 061708geo

5 ANS: 2

$$4(4x - 3) = 3(2x + 8)$$

$$16x - 12 = 6x + 24$$

$$10x = 36$$

$$x = 3.6$$

REF: 080923ge

6 ANS: 3

$$8 \cdot 15 = 16 \cdot 7.5$$

REF: 061913geo

7 ANS: 1
 $8 \times 12 = 16x$
 $6 = x$

REF: 081328ge

8 ANS:
 $x^2 = 9 \cdot 8$
 $x = \sqrt{72}$
 $x = \sqrt{36} \sqrt{2}$
 $x = 6\sqrt{2}$

REF: 011132ge

9 ANS:
 6. If two chords intersect, the product of the segments of one chord equals the product of the segments of the

$$x(x - 4) = 4 \times 3$$

other chord. $x^2 - 4x - 12 = 0$. If you substitute -2 for x , distance is negative, which cannot be

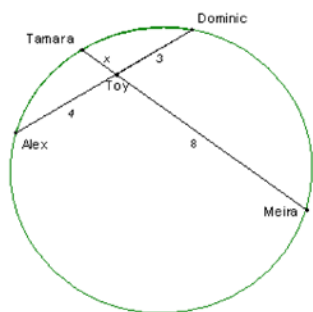
$$(x - 6)(x + 2) = 0$$

$$x = 6 \text{ or } x = -2$$

the case. Therefore $x = 6$.

REF: 060723b

10 ANS:



1.5. If two chords intersect, the product of the segments of one chord equals the product of the segments of the other chord.

$$8x = 3 \times 4$$

$$x = 1.5$$

REF: 080225b