1. How many distinct circles can be drawn through 3 non-collinear points?

 a) 1   b) 2   c) 3   d) 0

 e) an infinite number

2. Which of the following statements are true about a circle?

 I. All of its chords are congruent.

 II. The total number of degrees is 360.
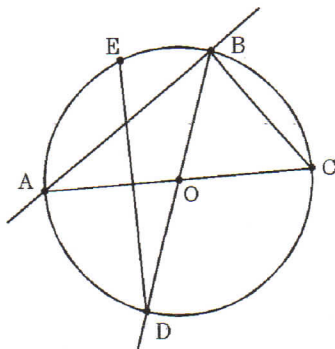
 III. It has exactly two diameters.

 a) I only

 b) II only

 c) III only

 d) I and II

 e) all of the statements are true

3. Which of the following statements is true?

 a) A chord is contained in a tangent.

 b) A chord is contained in a radius.

 c) A chord is contained in a secant.

 d) A chord is contained in an arc.

4. How many radii can be named in the diagram?

 a) 1   b) 2

 c) 3   d) 4

 e) 5

5. In a circle of diameter 50 cm a chord of 16 cm is drawn. To 2 decimal places, how far is the chord from the center of the circle?
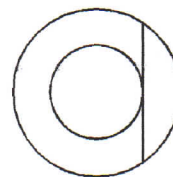
 a) 16.24 cm   b) 18.32 cm

 c) 21.56 cm   d) 23.69 cm

6. A circle has diameter 26 cm. Find the length of a chord if it is 5 cm from the center.

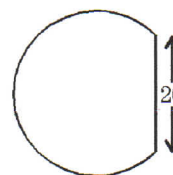 a) 6 cm   b) 12 cm   c) 16 cm

 d) 18 cm   e) 24 cm

7. Chord AB, 48 cm long, is tangent to the smaller of two concentric circles, as shown in the diagram. If the radius of the small circle is 10 cm, find the radius of the large circle.

 a) 20 cm   b) 24 cm   c) 25 cm
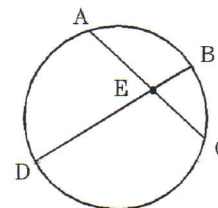
 d) 26 cm   e) 52 cm

8. A 20 cm long cut is made 9 cm from the outside edge of the circle. What is the radius (to the nearest tenth)?

 a) 4.4 cm   b) 10.0 cm

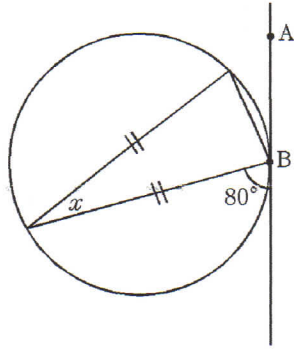 c) 11.1 cm   d) 13.5 cm

 e) 14.9 cm

9. In the circle shown, chords AC and BD intersect at E. If $AE = 8$, $EC = 6$, and $BE = 4$. How long is $\overline{DE}$?

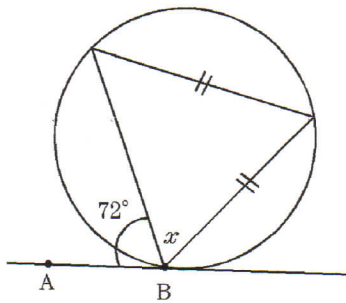 a) 10   b) 12

 c) 14   d) 16

10. $\overline{AB}$ is a tangent line. Find x.

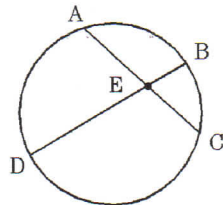a) 5°   b) 10°

c) 16°   d) 20°

e) 40°

11. $\overline{AB}$ is a tangent line. Find x.
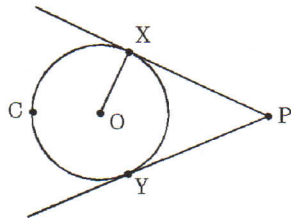
a) 18°

b) 44°

c) 54°

d) 72°

e) 108°

12. In the circle shown, chords AC and BD intersect at E. If $EB = x - 4$, $DE = 2x + 9$, $AE = x$, and $EC = x + 6$. How long is $\overline{AC}$?
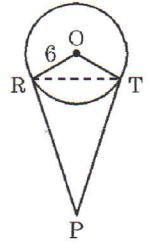
a) 18   b) 21

c) 22   d) 24

13. In the diagram below, $\overrightarrow{PX}$ is a tangent and $\overline{OX}$ is a radius. If the length of $\overline{OX}$ is 5 and $OP = 13$, how long is $\overline{PY}$?

a) 8   b) 12
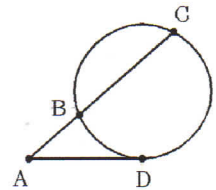
c) 18   d) $\sqrt{145}$

e) $\sqrt{194}$

14. In the diagram O is the center, $\overline{PT}$ and $\overline{PR}$ are tangents, and $m\angle TOR = 150°$. If $OR = 6$ cm, then what is the measure of $\angle TPR$?
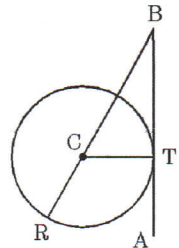
a) 15°   b) 30°   c) 75°

d) 105°   e) 210°

15. In the circle shown, $\overline{AD}$ is a tangent and $\overline{AC}$ is a secant. If $AC = 24$ and $AD = 12$, what is the length of $\overline{BC}$?
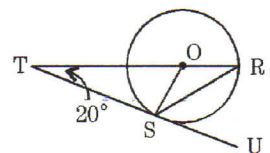
a) 12   b) 16

c) 18   d) 20

16. In circle C, $\overline{AB}$ is tangent to the circle at T and $m\angle RBA = 30°$. What is the measure, in degrees, of minor arc $\overset{\frown}{RT}$?
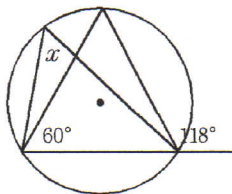
a) 55   b) 70   c) 110

d) 120   e) 160

17. In circle O, $\overline{TS}$ is tangent to the circle at S and $m\angle OTS = 20°$. What is the measure, in degrees, of minor arc $\overset{\frown}{RS}$?

a) 55   b) 70

c) 110   d) 120
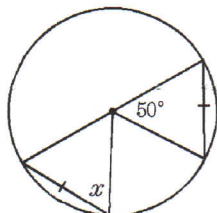
e) 160

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18. What is the measure of $\angle x$?

    a) 58°   b) 64°

    c) 116°   d) 122°
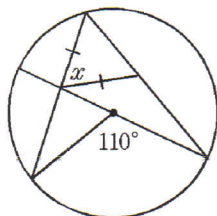
    e) 126°

19. What is the measure of $\angle x$?
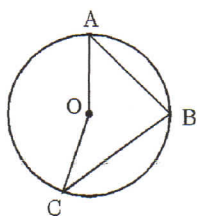
    a) 60°   b) 65°   c) 70°

    d) 95°   e) 115°

20. What is the measure of $\angle x$?
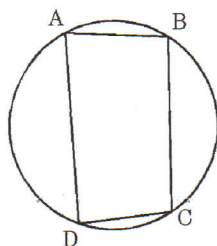
    a) 50°   b) 55°

    c) 62.5°   d) 70°

    e) 110°

21. In circle O, the measure of $m\angle A = 25°$ and the measure of $m\angle C = 30°$. What is the measure of $\angle AOC$?

    a) 55°   b) 110°   c) 120°

    d) 130°   e) 140°
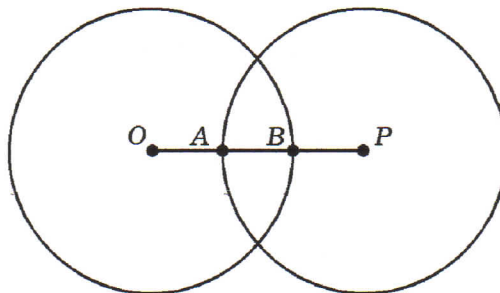
22. If $m\angle A = (2x + 5)°$ and $m\angle C = (3x - 20)°$, then what is the measure of $\angle BAD$?

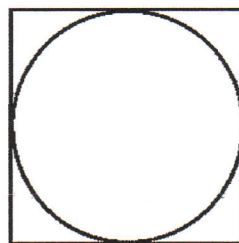   a) 33°   b) 39°   c) 75°

    d) 83°   e) 97°

23. In order to create a pattern for a blanket, Shondra needs to use two congruent circles as shown.

    If $OP = 31$ inches and $AB = 5$ inches, what is the radius of one of the circles?

    a) 13 in   b) 15.5 in   c) 16.5 in   d) 18 in

24. A gardener wants to enclose a circular garden with a square fence, as shown below.

    If the circumference of the circular garden is about 48 feet, which of the following is the *best* estimate for the length of fencing needed?

    a) 30 ft   b) 60 ft   c) 120 ft   d) 240 ft

25. In the circle shown, quadrilateral $ABCD$ is inscribed in the circle. $\overline{FE}$ is a tangent and $\overline{BD}$ is a diagonal. If $m\angle A = 2x - 15$, $m\angle C = 3x - 25$, $m\angle BDC = 30$, and $m\angle ADF = 70$, what is $\angle DBC$?

    a) 39°   b) 32°

    c) 46°   d) 43°

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