Homework 6.10: Angles and Segments
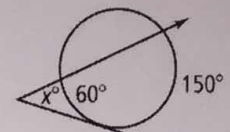
Math 3

Name: _____
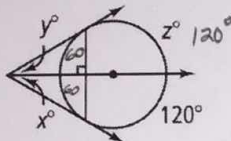
Directions: Solve for x.

1.

$$x° = \frac{88° + 86°}{2} = 87°$$
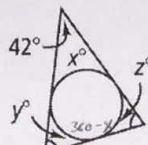
2.

$$x° = \frac{90° - 20°}{2} = 35°$$

3.

$$x° = \frac{150 - 60°}{2} = 45°$$

Directions: Solve for each variable listed.

4.

$$z = 120°$$

$$x° = y° = \frac{120 - 60}{2} = 30°$$

5.

$$42° = \frac{(360 - x) - x}{2}$$

$$84° = 360 - 2x$$

$$2x = 276$$
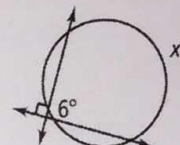
$$x = 138°$$

$$y° = z°$$

$$\frac{360 - 138 = 222}{2}$$

$$y° = z° = 111°$$

6.

$$90° = \frac{x° - 6°}{2}$$
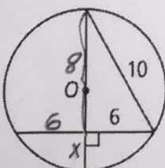
$$x = 186°$$

7. There is a circular cabinet in the dining room. Looking in from another room at point A, you estimate that you can see an arc of the cabinet of about 100°. What is the measure of ∠A formed by the tangents to the cabinet?
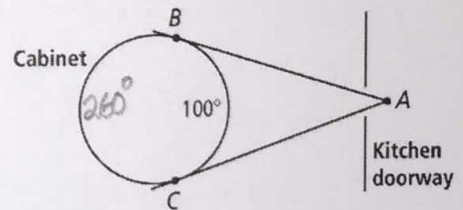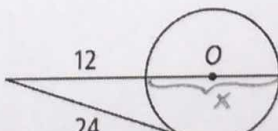

$$m\angle A = \frac{260° - 100°}{2} = 80°$$

Directions: Find the diameter of ⊙O. A line that appears to be tangent is tangent. If your answer is not a whole number, round to the nearest tenth.
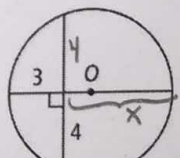
8.

$$8(x) = 6(6)$$

$$x = \frac{36}{8} = 4.5$$

9.

$$12(12 + x) = 24(24)$$

$$12 + x = 2(24)$$

$$x = 36$$

10.

$$4(4) = 3(x)$$

$$x = \frac{16}{3}, \text{ so diam} = 3 + \frac{16}{3}$$

$$= \frac{25}{3} = 8.3$$

Directions: $\overline{CA}$ and $\overline{CB}$ are tangents to ⊙O. Write an expression for each arc or angle in terms of the given variable.

11. $m\overset{\frown}{AB}$ using x

$$z°$$

$$z° = 360° - x°$$

12. $m\overset{\frown}{AB}$ using y

$$z°$$

$$y° = \frac{x° - z°}{2}$$

$$y° = \frac{(360° - z)° - z°}{2}$$

$$y° = \frac{360 - 2z}{2} = 180 - z°$$

so $z° = 180° - y°$

13. $m\angle C$ using x

$$y$$

$$y° = \frac{x° - z°}{2}$$

$$y° = \frac{x° - (360° - x°)}{2} = \frac{360° + 2x}{2}$$

$$y° = 180° + x°$$