Module Test A

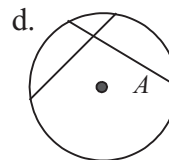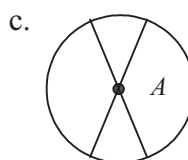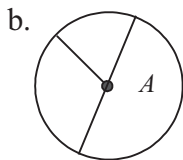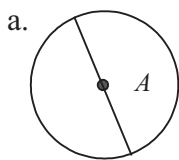**Module 9**

Circle the correct answer for each problem.

1. What is the radius of a circle if its diameter is 24 inches?

    a. 6 inches   b. 12 inches   c. 48 inches   d. 75 inches

12 inches

2. Point *A* is the center of each circle. Which figure shows exactly two diameters?

    a.   b.   c.   d.
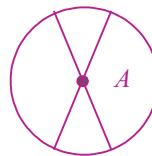
3. Which polygon is convex?

    a.   b.   c.   d.
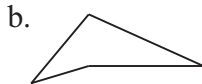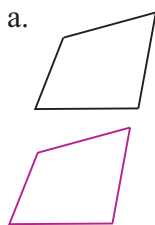
4. Classify a polygon with six sides.

    a. pentagon   b. hexagon   c. heptagon   d. octagon

hexagon

5. Which must have four congruent sides?

    a. parallelogram   b. trapezoid   c. rectangle   d. rhombus

rhombus

6. Three angles in a quadrilateral measure 35°, 141°, and 88°. Find the measure of the fourth angle.

<p style="text-align:center"><strong style="color:magenta">The fourth angle measures 96°.</p>
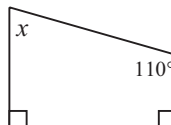
7. Find the value of x in the trapezoid at right.

<p style="text-align:center"><strong style="color:magenta">$x = 70°$</p>

8. The radius of a small plate is $3\frac{1}{2}$ inches. Use $\frac{22}{7}$ for π to approximate the circumference of the plate.

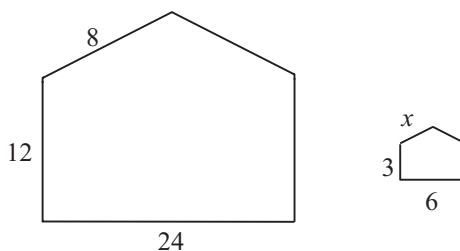<p style="text-align:center"><strong style="color:magenta">The plate's circumference is about 22 inches.</p>

9. A tree trunk has a diameter of 70 centimeters. Estimate the circumference of the tree trunk using 3.14 for π.

<p style="text-align:center"><strong style="color:magenta">The circumference of the tree trunk is about 219.8 cm.</p>

10. The polygons are similar. What is the value of x?

<p style="text-align:center"><strong style="color:magenta">$x = 2$</p>

11. A 24-inch by 36-inch photo is reduced to 75% of the original. What are the dimensions of the reduced photo?

The dimensions of the reduced photo are 18 in. by 27 in.

12. The scale on a map is 2 in. = 15 mi. If the actual distance between the two towns is 45 miles, what is the distance between the two towns on the map?

The distance between the two towns on the map is six in.

13. Ian knows that $\angle 1$ and $\angle 2$ are congruent and makes the following conjecture: $\angle 1$ and $\angle 2$ are vertical angles. Draw a counterexample to Ian's conjecture.

Possible answer:

14. What are the next two figures in the pattern? Explain how you know. Did you use inductive or deductive reasoning?

○△□ ○△□□ ○△□□□ ○△□□

The next two figures are a square and then a circle. The pattern involves a group of figures that starts with a circle and a triangle followed by a certain number of squares. The number of squares always increases by one. I used inductive reasoning because I recognized a pattern.

15. Determine if the two polygons are similar. Explain why or why not.
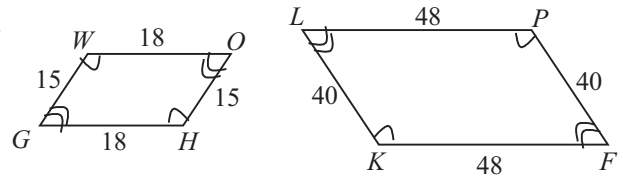
Yes:

The corresponding angles are congruent:
$\angle W \cong \angle K, \angle G \cong \angle L, \angle O \cong \angle F, \angle H \cong \angle P.$

The corresponding sides are proportional: $\dfrac{WG}{KL} = \dfrac{WO}{KF} = \dfrac{OH}{FP} = \dfrac{GH}{LP} \rightarrow$

$\dfrac{15}{40} = \dfrac{18}{48} = \dfrac{15}{40} = \dfrac{18}{48} \rightarrow$ **All ratios simplify to** $\dfrac{3}{8}$**.**