LESSON 1-5

Practice A

Using Formulas in Geometry

Complete the statements.

1. The sum of the __________________ of a plane figure is called the perimeter.

2. Give the formula for the perimeter of a rectangle. __________________

3. The __________________ of a plane figure is the number of nonoverlapping square units of a given size that exactly cover the figure.

4. The formula for the area of a triangle is __________________.

Use the figure for Exercises 5 and 6.

5. Find the perimeter of the rectangle. ________________

6. Find the area of the rectangle. ________________

Use the figure for Exercises 7 and 8.

7. Find the perimeter of the triangle. ________________

8. Find the area of the triangle. ________________

Complete the statements.

9. In a circle, a __________________ is a segment that passes through the center of the circle and that has endpoints on the circle.

10. A radius of a circle is a segment whose endpoints are the __________________ of the circle and a point on the circle.

11. The diameter of a circle is __________________ the radius.

Draw your answer in the space provided.

12. Sketch a circle and label the center, a diameter, and a radius.

13. Give the formula for the area of a circle. __________________

14. The circumference of a circle is the distance ________________ the circle.

15. Give the formula for the circumference of a circle. __________________
**Practice A**

**Using Formulas in Geometry**

Complete the statements.

1. The sum of the side lengths of a plane figure is called the perimeter.
2. Give the formula for the perimeter of a rectangle: \( P = 2l + 2w \)
3. The area of a plane figure is the number of nonoverlapping square units of a given size that exactly cover the figure.
4. The formula for the area of a triangle is \( A = \frac{1}{2}bh \)

Use the figure for Exercises 5 and 6.

5. Find the perimeter of the rectangle. \( 30 \text{ yd} \)
6. Find the area of the rectangle. \( 54 \text{ yd}^2 \)

Use the figure for Exercises 7 and 8.

7. Find the perimeter of the triangle. \( 24 \text{ cm} \)
8. Find the area of the triangle. \( 24 \text{ cm}^2 \)

Complete the statements.

9. In a circle, a diameter is a segment that passes through the center of the circle and that has endpoints on the circle.
10. A radius of a circle is a segment whose endpoints are the center of the circle and a point on the circle.
11. The diameter of a circle is twice the radius.
12. Sketch a circle and label the center, a diameter, and a radius.

13. Give the formula for the area of a circle: \( A = \pi r^2 \)
14. The circumference of a circle is the distance around the circle.
15. Give the formula for the circumference of a circle: \( C = 2\pi r \) or \( C = \pi d \)

**Practice B**

**Using Formulas in Geometry**

Use the figures for Exercises 1–3.

1. Find the perimeter of triangle \( A \). \( 12 \text{ ft} \)
2. Find the area of triangle \( A \). \( 6 \text{ ft}^2 \)
3. Triangle \( A \) is identical to triangle \( B \). Find the height \( h \) of triangle \( B \). \( 2.4 \text{ ft} \) or \( 2\frac{2}{5} \text{ ft} \)

Find the perimeter and area of each shape.

4. square with a side 2.4 m in length
5. rectangle with length \( (x - 3) \) and width 7

6. Although a circle does not have sides, it does have a perimeter. What is the term for the perimeter of a circle?

7. Find the perimeter and area of each circle.

8. Using Formulas in Geometry

9. Use the Pythagorean Theorem, \( \sqrt{5^2 + 12^2} = 13 \text{ in.} \)

Use the figure for Exercises 13 and 14.

10. The area of a square is \( \frac{1}{2} \pi r^2 \). Find the perimeter. \( 2 \text{ in} \).
11. The area of a triangle is 152 \( \text{ m}^2 \), and the height is 16 \( \text{ m} \). Find the base. \( 19 \text{ m} \)
12. The circumference of a circle is 256 \( \text{ mm} \). Find the radius. \( 12.5 \text{ mm} \)

Use the figure for Exercises 13 and 14.

13. Find \( x \). \( 7.5 \text{ ft} \)
14. Find the area enclosed by the rope. \( 42 \text{ ft}^2 \)

**Retrace**

**Using Formulas in Geometry**

The perimeter of a figure is the sum of the lengths of the sides. The area is the number of square units enclosed by the figure.

<table>
<thead>
<tr>
<th>Figure</th>
<th>Rectangle</th>
<th>Square</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>a \times l</td>
<td>a \times a</td>
</tr>
<tr>
<td>Perimeter</td>
<td>( P = 2l + 2w ) or ( 2(l + w) )</td>
<td>( P = 4a )</td>
</tr>
<tr>
<td>Area</td>
<td>( A = lw )</td>
<td>( A = a^2 )</td>
</tr>
</tbody>
</table>

Find the perimeter and area of each figure.

1. rectangle with \( l = 4 \text{ ft} \), \( w = 1 \text{ ft} \)
2. square with \( s = 8 \text{ mm} \)

3. \( 10 \text{ ft}; 4 \text{ ft}^2 \)
4. \( 13 \text{ in.}; 32 \text{ mm}; 64 \text{ mm}^2 \)

5. \( 28 \text{ cm}; 49 \text{ cm}^2 \)

The perimeter of a triangle is the sum of its side lengths. The base and height are used to find the area.

<table>
<thead>
<tr>
<th>Perimeter</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P = a + b + c )</td>
<td>( A = \frac{1}{2}bh ) or ( \frac{ah}{2} )</td>
</tr>
</tbody>
</table>

Find the perimeter and area of each triangle.

5. \( 10 \text{ ft} \)
6. \( 6.5 \text{ cm}; 6.7 \text{ cm} \)