Day One – Area of Parallelograms

**Area of Rectangles and Parallelograms**

1. The *area* of a polygon is the amount of surface it covers.
2. To find the area of a rectangle, *multiply* the base by the height.
3. The algebraic formula is: \( A = bh \)
4. Area is measured in *square units*.
5. Find the area of each rectangle below:

   - 3 in. \times 6 in. = 18 square inches
   - 12 in. \times 16 in. = 192 square inches
   - 11 m \times 15 m = 165 m^2

6. The area of a parallelogram is the *product* of its base and its height.
7. The algebraic formula is: \( A = bh \).
8. Find the area of each parallelogram below:

   - 7 m \times 6 m = 42 square meters
   - 8 in. \times 10 in. = 80 square inches
   - 3 cm \times 12 cm = 36 square centimeters

Answers: 7 x 6 = 42 square meters; 8 x 10 = 80 square inches; 3 x 12 = 36 square centimeters
Activity 1: You may use a calculator to check your answers.

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the area of a parallelogram with a base of 100 cm and a height of 50 cm?</td>
<td>$100 \times 50 =$ ______square cm</td>
</tr>
<tr>
<td>2. Find the area of the figure below:</td>
<td>Answer: ______square meters</td>
</tr>
<tr>
<td></td>
<td><img src="image" alt="Diagram" /></td>
</tr>
<tr>
<td>3. What is the area of a parallelogram with a base of 5.2 feet and a height of 3.8 feet?</td>
<td>$A = \text{Base} \times \text{Height}$</td>
</tr>
<tr>
<td>4. Find the area of the figure below:</td>
<td><img src="image" alt="Diagram" /></td>
</tr>
</tbody>
</table>
Day 2 – Area of a Triangle

**IMPORTANT VOCABULARY:**

- **Area:** The number of square units contained in a figure.
- **Perpendicular Lines:** Lines that form a 90° angle.

**AREA OF TRIANGLES**

1. To find the area of a triangle, multiply the base by the height, then divide by two.
2. Another way this can be written is: multiply \( \frac{1}{2} \) times the base times the height.
3. The algebraic formula is: \( A = \frac{1}{2}bh \) or \( A = \frac{1}{2}bh \)
4. The base and height are perpendicular to each other.
5. Right angles measure 90 degrees

**GUIDED PRACTICE**

<table>
<thead>
<tr>
<th>Find the area:</th>
<th>Find the area:</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Triangle 1" /></td>
<td><img src="image2.png" alt="Triangle 2" /></td>
</tr>
</tbody>
</table>

- \( b = 40 \text{ cm} \)
- \( h = 9 \text{ cm} \)
- \( A = \frac{1}{2} \times 40 \times 9 \)
- \( A = 20 \times 9 \)
- \( A = 180 \text{ cm}^2 \)

- \( b = 14 \text{ cm} \)
- \( h = 12 \text{ cm} \)
- \( A = \frac{1}{2} \times 14 \times 12 \)
- \( A = 7 \times 12 \)
- \( A = 84 \text{ cm}^2 \)
## Activity 2:

<table>
<thead>
<tr>
<th>Question</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What is the area of a triangle with a base of 6m and a height of 7m?</td>
<td>$A = \frac{1}{2} \times 6 \times 7 = 21 \text{ m}^2$</td>
</tr>
<tr>
<td>2. What is the area of a triangle with a base of 10 cm and a height of 40 cm?</td>
<td>$A = \frac{1}{2} \times 10 \times 40 = 200 \text{ cm}^2$</td>
</tr>
<tr>
<td>3. What is the area of a triangle with a base of 14.5 cm and a height of 7.1 cm?</td>
<td>$A = \frac{1}{2} \times 14.5 \times 7.1 = 52.825 \text{ cm}^2$</td>
</tr>
<tr>
<td>4. Find the area of the figure below:</td>
<td>$A = \frac{1}{2} \times 4 \times 7 = 14 \text{ m}^2$</td>
</tr>
</tbody>
</table>
Find the area of the trapezoid using the formula:

\[ A = \frac{1}{2} \times \text{height} (\text{base}_1 + \text{base}_2) \]

\[ A = \frac{1}{2} \times 6 (10 + 14) \]
\[ A = 3(24) \]
\[ A = 72 \text{ m}^2 \]

Find the area of the trapezoid using the formula:

\[ A = \frac{1}{2} \times \text{height} (\text{base}_1 + \text{base}_2) \]

Fill in the blanks:

\[ A = \frac{1}{2} \times \text{_______} (\text{______} + \text{______}) \]
\[ A = \frac{1}{2} \times \text{_______} (\text{______}) \]
\[ A = \text{_______} \times \text{_______} \]
\[ A = \text{___________ cm}^2 \]

height = 6
\[ \text{base}_1 = 3 \]
\[ \text{base}_2 = 9 \]

Answer: 36 cm^2
**Activity 3**: You may use a calculator to check your answers.

1. What is the area of the trapezoid with the following dimensions:

   \[ b_1 = 5 \text{ in} \quad A = \frac{1}{2} \times 7(5 + 2) \]
   \[ b_2 = 2 \text{ in} \quad A = \frac{1}{2} \times 7(7) \]
   \[ h = 7\text{ in} \quad A = 3.5(7) \]
   \[ A = 24.5 \text{ in}^2 \]

2. What is the area of the trapezoid with the following dimensions:

   \[ b_1 = 20 \text{ in} \quad A = \frac{1}{2} \times 10(20 + 30) \]
   \[ b_2 = 30 \text{ in} \quad A = \frac{1}{2} \times 10(_____) \]
   \[ h = 10 \text{ in} \quad A = ______(_____) \]
   \[ A = ______ \text{ in}^2 \]

3. What is the area of the trapezoid with the following dimensions:

   \[ b_1 = 4.1 \text{ m} \quad A = \frac{1}{2} \times 4.5 (4.1 + 4.2) \]
   \[ b_2 = 4.2 \text{ m} \quad A = \frac{1}{2} \times 4.5(8.3) \]
   \[ h = 4.5 \text{ m} \quad A = 2.25 (8.3) \]
   \[ A = ______ \text{ m}^2 \]

4. Find the area of the trapezoid below:

   \[ b_1 = 12 \text{ m} \quad A = \frac{1}{2} \times 8 (12 + 17) \]
   \[ b_2 = 17 \text{ m} \quad A = \frac{1}{2} \times 8(______) \]
   \[ h = 8 \text{ m} \quad A = ______ (______) \]
   \[ A = ______ \text{ m}^2 \]

5. Find the area of the trapezoid below:

6. Find the area of the trapezoid below: