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To find the area of a polygon with more than 4 sides, divide (or decompose) the polygon into triangles and quadrilaterals. The area of the polygon is the sum of the areas of the parts.

The area of the square is \( 6 \times 6 = 36 \) square units.
The area of the triangle is \( \frac{1}{2} \times 6 \times 7 = 21 \) square units.
The total area is \( 36 + 21 = 57 \) square units.

Two figures are congruent if they are the same size and shape.

Area of a rectangle: \( A = lw \)
Area of a triangle: \( A = \frac{1}{2}bh \)

Read each problem. Circle the letter of the best answer.

1. This polygon is composed of congruent parallelograms. What is its area?

   \[
   \begin{array}{c}
   \text{A} \quad 112 \text{ cm}^2 \\
   \text{B} \quad 128 \text{ cm}^2 \\
   \text{C} \quad 224 \text{ cm}^2 \\
   \text{D} \quad 256 \text{ cm}^2
   \end{array}
   \]

   Each parallelogram in the figure has base 16 centimeters and height 7 centimeters. So each one has area \( 16 \times 7 = 112 \) square centimeters, and the total area is twice that. The correct answer is C.

2. In this figure, \( ABCE \) is a rectangle, \( AB = 5 \), \( AE = 9 \), and \( DF = 6 \). What is the total area of pentagon \( ABCDE \)?

   \[
   \begin{array}{c}
   \text{A} \quad 51 \text{ square units} \\
   \text{B} \quad 60 \text{ square units} \\
   \text{C} \quad 72 \text{ square units} \\
   \text{D} \quad 75 \text{ square units}
   \end{array}
   \]

3. This figure is composed of two rectangles. What is its area?

   \[
   \begin{array}{c}
   \text{A} \quad 88 \text{ in.}^2 \\
   \text{B} \quad 92 \text{ in.}^2 \\
   \text{C} \quad 108 \text{ in.}^2 \\
   \text{D} \quad 124 \text{ in.}^2
   \end{array}
   \]

4. A circus tent is covered by a piece of canvas shaped like a regular hexagon, as shown below.

   Each side of the canvas is 10 meters long. What is its total area?

   \[
   \begin{array}{c}
   \text{A} \quad 43.3 \text{ m}^2 \\
   \text{B} \quad 86.6 \text{ m}^2 \\
   \text{C} \quad 259.8 \text{ m}^2 \\
   \text{D} \quad 519.6 \text{ m}^2
   \end{array}
   \]
Read each problem. Write your answers.

5 In the diagram at the right, $QR = 8$ units, $PS = 12$ units, $UV = 6$ units, $VT = 10$ units, and $TU$ is perpendicular to $PS$.

A What is the area of $PQRST$?

Answer: ________________

B Explain how you found your answer.

___________________________________________________________________________________
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6 Tabitha used 5 congruent square tiles and 4 congruent triangular tiles to make this octagonal floor in her shower.

A What is the edge length of each square tile?

Answer: ________________

B What is the total area of the floor?

Answer: ________________

C Explain how you found your answers.

___________________________________________________________________________________
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