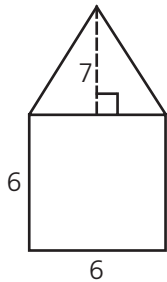


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LESSON 14 Area of Polygons

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:

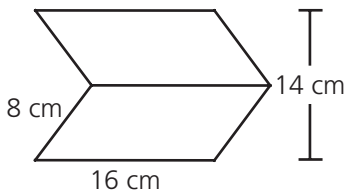
$$A = lw$$

Area of a triangle:

$$A = \frac{1}{2}bh$$

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

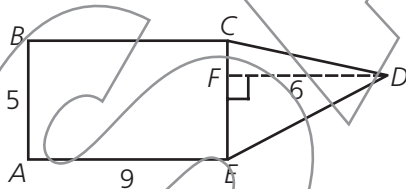
- 1 This polygon is composed of congruent parallelograms. What is its area?



- A 112 cm² C 224 cm²
 B 128 cm² D 256 cm²

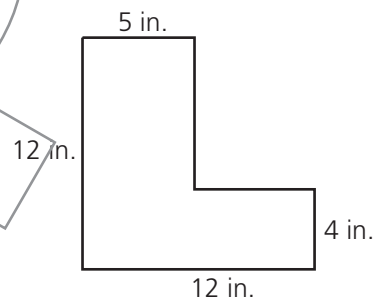
Each parallelogram in the figure has base 16 centimeters and height 7 centimeters. So each one has area $16 \times 7 = 112$ square centimeters, and the total area is twice that. The correct answer is C.

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



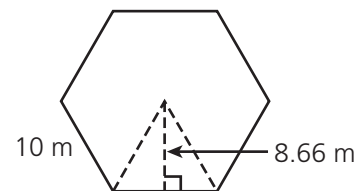
- A 51 square units C 72 square units
 B 60 square units D 75 square units

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



- A 88 in.² C 108 in.²
 B 92 in.² D 124 in.²

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

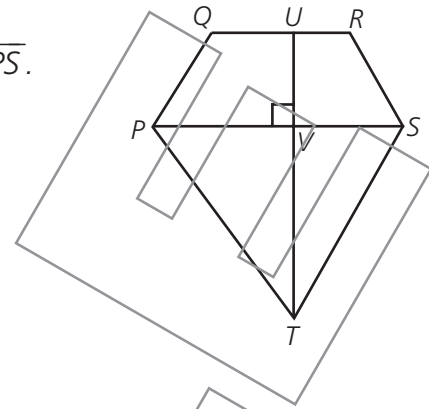


Each side of the canvas is 10 meters long. What is its total area?

- A 43.3 m² C 259.8 m²
 B 86.6 m² D 519.6 m²

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 \overline{TU} is perpendicular to \overline{PS} .

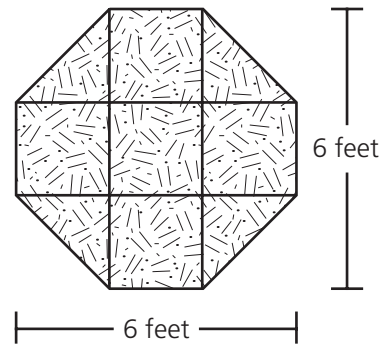


- A What is the area of $PQRST$?

Answer: _____

- B Explain how you found your answer.

- 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.
