

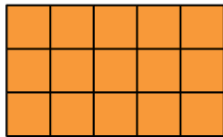
Activity 3 Assessment

Areas of Parallelograms, Triangles, and Trapezoids

Measuring Area of Parallelograms, Triangles, and Trapezoids

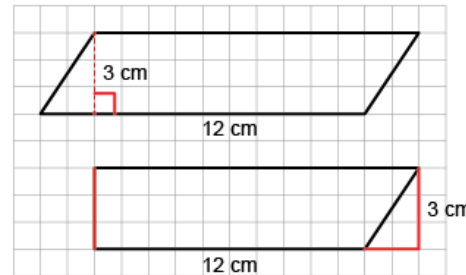
Determines the area of a rectangle.

“A rectangle is an array of squares. To find the area, I multiply the number of rows by the number of columns or use the formula $A = b \times h$. This rectangle has area $5 \text{ cm} \times 3 \text{ cm} = 15 \text{ cm}^2$.”



Partitions and rearranges a parallelogram to form a rectangle with the same base and height (same area).

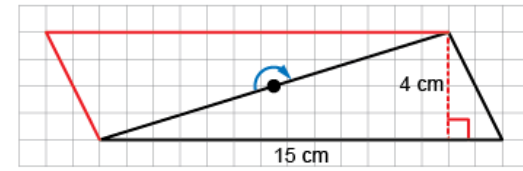
Parallelogram B



“I partitioned the parallelogram and moved the triangle to create a rectangle.
I then found the area of the rectangle:
 $A = b \times h = 12 \text{ cm} \times 3 \text{ cm} = 36 \text{ cm}^2$.
The area of the parallelogram is also 36 cm^2 .”

Doubles and rotates a triangle to create a parallelogram and understands that the area of the triangle is one-half the area of the parallelogram.

Triangle A



“I rotated the triangle to make a parallelogram with the same base and height. The area of the triangle is one-half the area of the parallelogram.
Area of parallelogram: $15 \text{ cm} \times 4 \text{ cm} = 60 \text{ cm}^2$
Area of triangle: $60 \text{ cm}^2 \div 2 = 30 \text{ cm}^2$
So, the formula for the area of a triangle is: $A = b \times h \div 2$.”

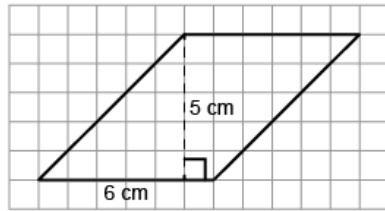
Observations/Documentation

Activity 3 Assessment

Areas of Parallelograms, Triangles, and Trapezoids

Measuring Area of Parallelograms, Triangles, and Trapezoids (cont'd)

Determines the area of a trapezoid by partitioning it into triangles and rectangles, then uses formulas to determine area.



"I divided the trapezoid into 2 triangles and a rectangle.

Triangle A: $A = (1 \text{ cm} \times 4 \text{ cm}) \div 2 = 2 \text{ cm}^2$

Rectangle B: $A = 5 \text{ cm} \times 4 \text{ cm} = 20 \text{ cm}^2$

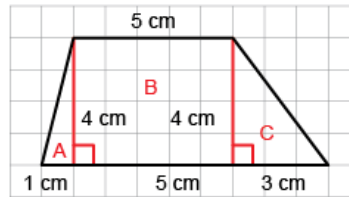
Triangle C: $A = (3 \text{ cm} \times 4 \text{ cm}) \div 2 = 6 \text{ cm}^2$

Area of trapezoid:

$2 \text{ cm}^2 + 20 \text{ cm}^2 + 6 \text{ cm}^2 = 28 \text{ cm}^2.$ "

Constructs a parallelogram or triangle with a given area using known formulas and explains strategies used.

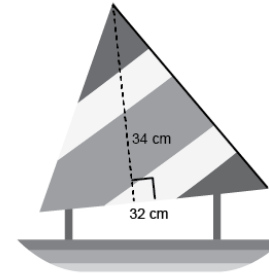
Construct a parallelogram with area 30 cm^2 .



"A parallelogram has the same area formula as a rectangle: $A = b \times h$. Since $5 \times 6 = 30$, I drew a horizontal line of length 6 cm for the base.

I drew a vertical line of length 5 cm for the height, then drew another horizontal line segment 6 cm long. I joined each end of the line segment to the base."

Flexibly solves problems involving the area relationships among rectangles, parallelograms, and triangles and the related formulas.



What is the area of the sail on the toy boat?

"I doubled the triangular sail to make a parallelogram with the same base and height. I found the area of the parallelogram: $34 \text{ cm} \times 32 \text{ cm} = 1088 \text{ cm}^2$, then divided the area in half to find the area of the triangle: $1088 \text{ cm}^2 \div 2 = 544 \text{ cm}^2.$ "

Observations/Documentation