Name_____ Date _____

4.2 Areas of Triangles
For use with Activity 4.2

Essential Question How can you derive a formula for the area of a triangle?

1 ACTIVITY: Deriving the Area Formula of a Triangle

Work with a partner.

a. Draw *any* rectangle on a piece of grid paper. Label the length and width. Then find the area of your rectangle.

b. Draw a diagonal from one corner of your rectangle to the opposite corner. Cut along the diagonal. Compare the area of the rectangle with the area of the two pieces you cut. What do you notice? Use your results to write a formula for the area *A* of a triangle.

Area = _____   Formula

2 ACTIVITY: Deriving the Area Formula of a Triangle

Work with a partner.

a. Fold a piece of grid paper in half. Draw a triangle so that its base lies on one of the horizontal lines of the paper. Do not use a right triangle. Label the height and the base *inside* the triangle.

b. Estimate the area of your triangle by counting unit squares.

Area ≈ _____   Estimate

fold
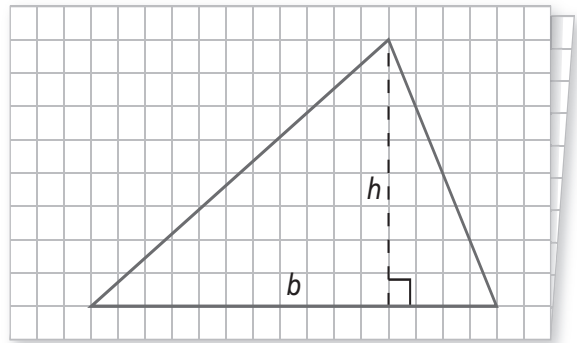
c. Cut out the triangle so that you end up with two identical triangles. Form a quadrilateral whose area you know. What type of quadrilateral is it? Explain how you *know* it is this type.

d. Use your results to write a formula for the area of a triangle. Then use your formula to find the exact are of your triangle. Compare this area with your estimate in part (b).

Area = _____   Formula

Area = _____   Exact Area

4.2 **Areas of Triangles** (continued)

3 **ACTIVITY:** Estimating and Finding the Area of a Triangle

Work with a partner. Each grid square represents 1 square centimeter.

- **Use estimation to match each triangle with its area.**

- **Then check your work by finding the exact area of each triangle.**

	Area	*Estimate Match*	*Exact Match*
a.	15 cm^2	_____	_____
b.	20 cm^2	_____	_____
c.	9 cm^2	_____	_____
d.	12 cm^2	_____	_____
e.	60 cm^2	_____	_____
f.	$12\frac{1}{2}$ cm^2	_____	_____
g.	$24\frac{1}{2}$ cm^2	_____	_____
h.	8 cm^2	_____	_____
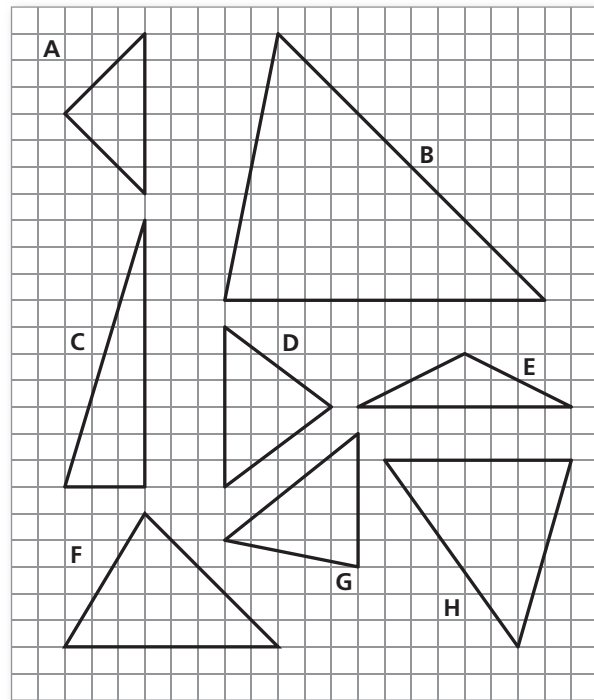
Not drawn to scale

4.2 **Areas of Triangles** (continued)

What Is Your Answer?

4. **PARTNER ACTIVITY** Use the centimeter grid paper to create your own "triangle matching activity." Trade with your partner and solve each other's matching activity.
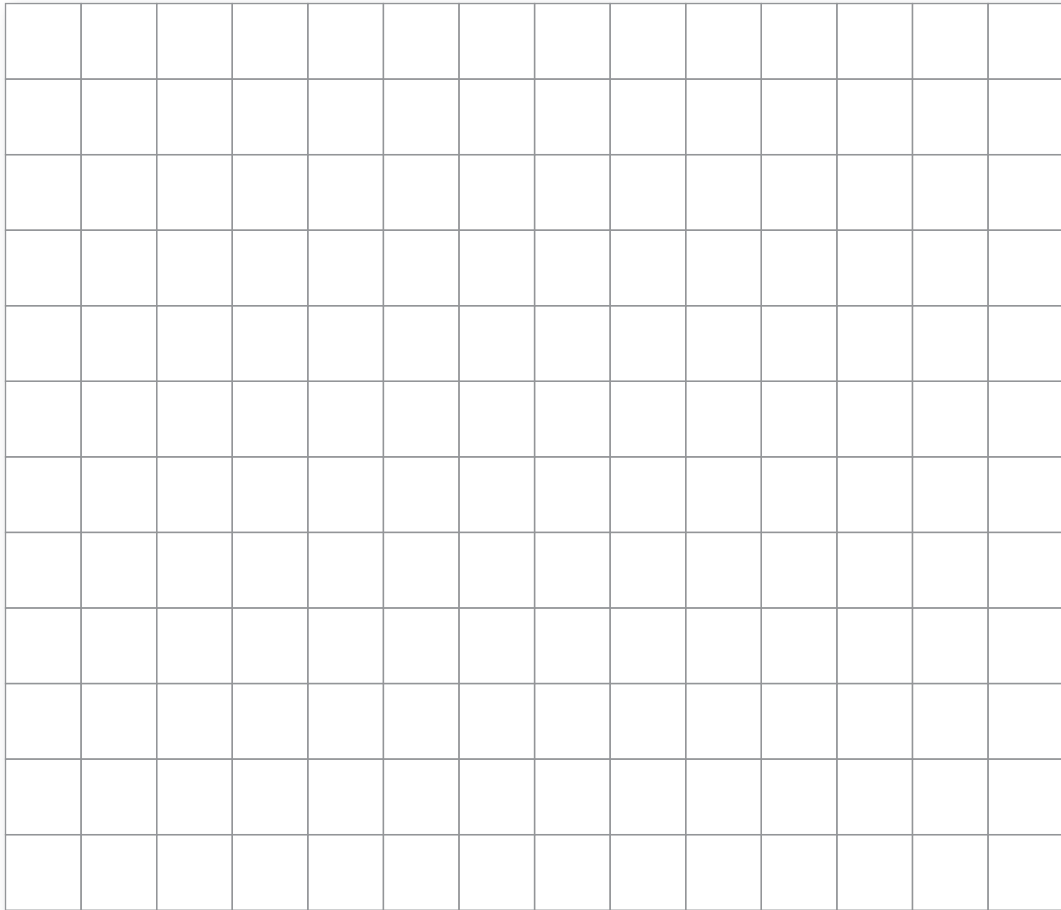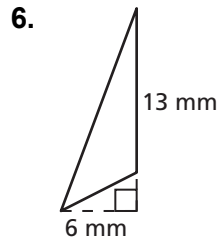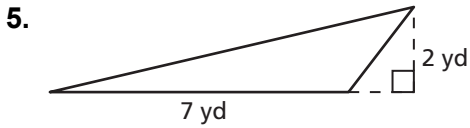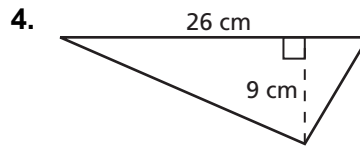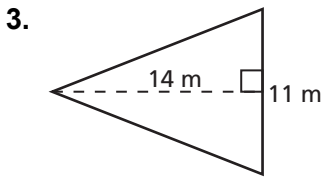
5. **IN YOUR OWN WORDS** How can you derive a formula for the area of a triangle?

Name _____ Date _____

Find the area of the triangle.

1.

5 in.

10 in.

2.

18 ft

18 ft

3.

14 m   11 m

4.

26 cm

9 cm

5.

2 yd

7 yd

6.

13 mm

6 mm
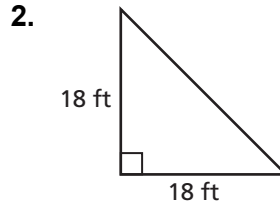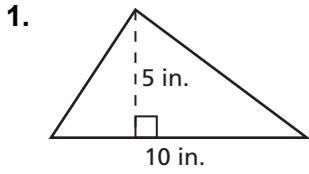
7. A triangular bookend has a base of 4 inches and a height of 8 inches. Find the area of the bookend.