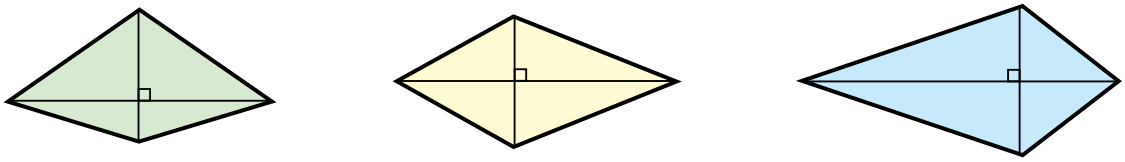
Name: _____

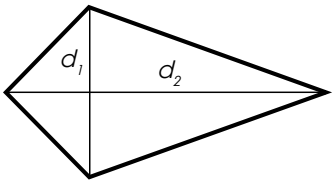
Area of Rhombuses and Kites

A **kite** is a kind of quadrilateral. It has two pairs of adjacent, equal-length sides and diagonals that intersect at right angles.

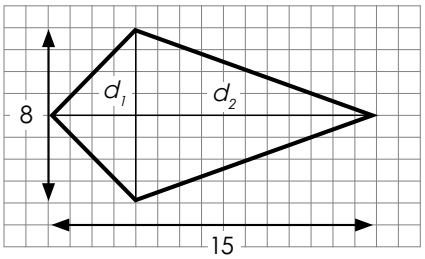


To understand the area of a kite, decompose it into triangles and rectangles.

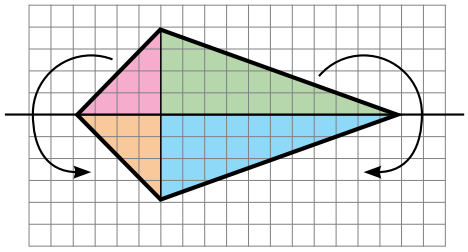
1. Draw the kite's diagonals to divide it into four triangles.



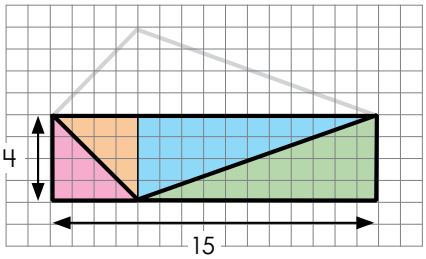
2. Imagine the kite inside a rectangle with height and base equal to the diagonals.



3. Imagine moving the identical triangles over the line of symmetry.



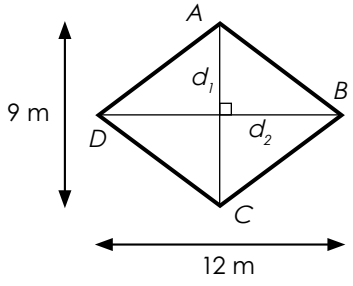
4. The new, filled-in rectangle has the same base but half the height of the original. Its area can be expressed as $\frac{1}{2}h \times b$



Recall that the height and base correspond to the kite's diagonals. Substitute and arrive at the formula:

$$A = \frac{1}{2} \times d_1 \times d_2$$

A **rhombus** is a special kind of kite with four equal-length sides. As a kite, it uses the same area formula.



$A = \frac{1}{2} \times d_1 \times d_2$

$A = \frac{1}{2} \times 9 \times 12$

$A = 54 \text{ m}^2$