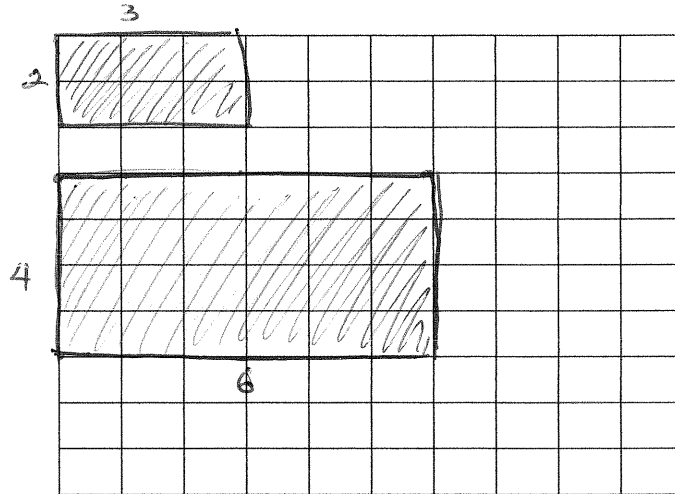


# Area Changes

On the grid paper below, draw a 2 by 3 rectangle. Then double each side and draw the new rectangle. Finally, find the area of both rectangles.

2x3 doubled  
is 4x6

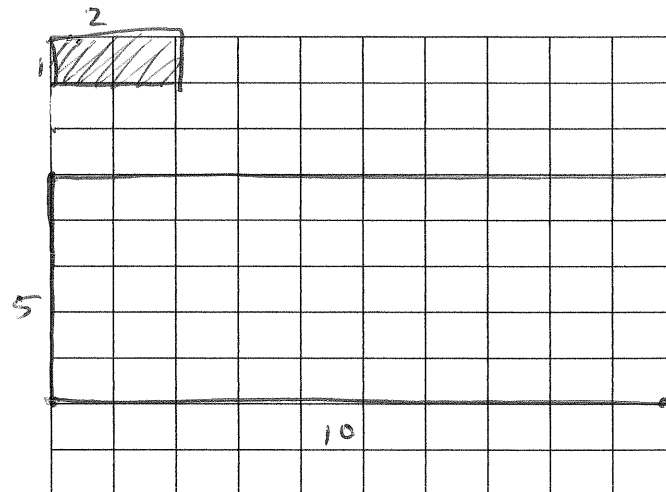


original area  
 $2 \times 3 = 6$

new area  
 $4 \times 6 = 24$

On the grid paper below, draw a 1 by 2 rectangle. Multiply each side by 5 and draw the new rectangle. Finally, find the area of both rectangles.

1x2 multiplied  
by 5  
is 5x10



original area  
 $1 \times 2 = 2$

new area  
 $5 \times 10 = 50$

What conclusion(s) can you make describing what happens to the area of a rectangle when the dimensions are changed?

When both dimensions are doubled, the area is quadrupled!  
( $2 \times 2 = 4$ )

When both dimensions are x5, the area is multiplied  
by 25! ( $5 \times 5 = 25$ )

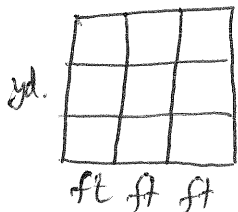
Now let's try this problem...

The Gatlins are buying new carpet for their house. They need about 1,175 square feet of carpet. The carpet they buy is sold by the square yard.

Part A...

Estimate the number of square yards of carpet the Gatlins need for their house.

Show your work.



$$1 \text{ sq. yard} = \underline{\underline{9}} \text{ sq. feet} \quad \left. \vphantom{1 \text{ sq. yard}} \right\} \text{ conversion}$$

estimation

$$\left\{ \begin{array}{l} 1175 \approx 1200 \\ 9 \approx 10 \end{array} \right.$$



finally, the problem!

$$1200 \div 10 = 120$$

Answer 120 square yards

Part B...

On the lines below, describe a strategy the Gatlins should use to correctly estimate the number of square yards of carpet they need for their house.

First, round 1175 to 1200 and 9 to 10.

Then divide 1200 by 10 to get 120 sq. yards.

Note: We divide by 9 because 1 sq. yd. = 9 sq. ft  
(see the diagram above!)