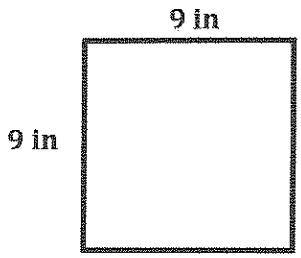
G3-M7-Lesson 28

A square sheet of construction paper has side lengths of 9 inches.

a. Estimate to draw the square sheet of paper, and label the side lengths.



I know that the side lengths of a square are equal.

b. What is the area of the square paper?

$A = 9 \text{ in} \times 9 \text{ in}$

$= 81 \text{ sq in}$

The area of the paper is 81 square inches.

I found the answer to 9×9 using a tens fact and mental math. I thought about the problem as $9 \times 10 = 90$, and $90 - 9 = 81$.

c. What is the perimeter of the square paper?

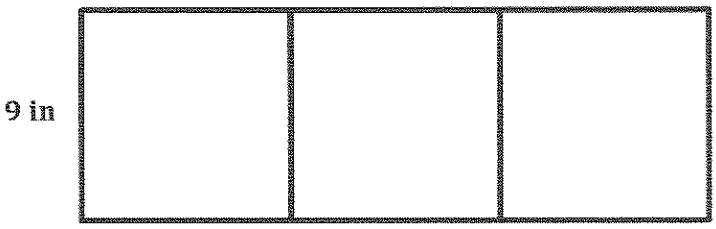
$P = 4 \times 9 \text{ in}$

$= 36 \text{ in}$

The perimeter of the square paper is 36 inches.

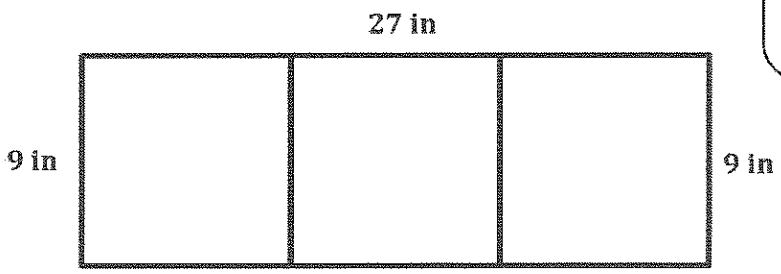
I chose to write a multiplication sentence instead of a repeated addition sentence because it is more efficient. I can also think of this problem as $4 \times 10 = 40$, and $40 - 4 = 36$.

d. Caitlyn connects three of these square papers to make one long banner. What is the perimeter of the new rectangular banner?



$P = 8 \times 9 \text{ in}$
$= 72 \text{ in}$

The side length of each square paper is 9 in. I can count to find that 8 sides of the squares make up the perimeter of the banner.
$8 \times 9 \text{ in} = 72 \text{ in}$



$P = 9 \text{ in} + 9 \text{ in} + 27 \text{ in} + 27 \text{ in}$
$= 72 \text{ in}$

The total perimeter of Caitlyn's banner is 72 inches.

Another strategy is to first find the side lengths of the rectangle. I know one side of the rectangle is still 9 in, but the other side tripled to 27 in. I can add all the side lengths together, but it's not a very friendly problem. Multiplying, like I did above, is a little easier.

e. What is the total area of Caitlyn's banner?

$A = (3 \times 81 \text{ sq in})$
$= (3 \times 80 \text{ sq in}) + (3 \times 1 \text{ sq in})$
$= 240 \text{ sq in} + 3 \text{ sq in}$
$= 243 \text{ sq in}$

I can use the break apart and distribute strategy to help me find the answer to this challenging multiplication equation. I can first think of 3×80 in unit form as 3×8 tens $= 24$ tens, which has a value of 240. Then, I just have to remember to add the product of 3×1.

The total area of Caitlyn's banner is 243 square inches.