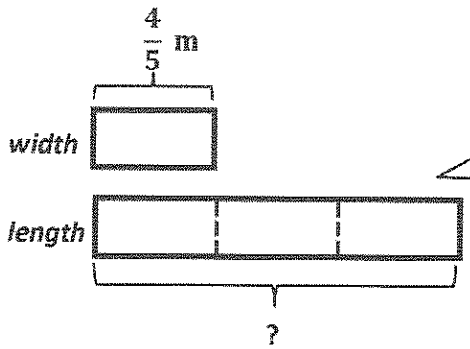
G5-M5-Lesson 15

1. The length of a flowerbed is 3 times as long as its width. If the width is $\frac{4}{5}$ meter, what is the area of the flowerbed?



Since the length is 3 times as long as the width, I draw a tape diagram with the width of 1 unit and the length of 3 units.

$$\frac{4}{5}\text{ m} \times 3 = \frac{12}{5}\text{ m}$$

I find the length of the flowerbed by multiplying by 3.

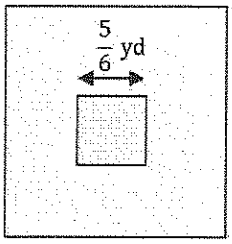
$$\begin{aligned}\text{Area} &= \text{length} \times \text{width}\\ &= \frac{12}{5}\text{ m} \times \frac{4}{5}\text{ m}\\ &= \frac{48}{25}\text{ m}^2\\ &= 1\frac{23}{25}\text{ m}^2\end{aligned}$$

I find the area of the flowerbed by multiplying the length times the width.

The flowerbed's area is $1\frac{23}{25}$ square meters.

2. Mrs. Tran grows herbs in square plots. Her rosemary plot measures $\frac{5}{6}$ yd on each side.

   a. Find the total area of the rosemary plot.



$$\begin{aligned}\text{Area} &= \text{length} \times \text{width}\\ &= \frac{5}{6}\text{ yd} \times \frac{5}{6}\text{ yd}\\ &= \frac{25}{36}\text{ yd}^2\end{aligned}$$

I multiply length times width to find the area of the rosemary plot.

The total area of the rosemary plot is $\frac{25}{36}$ square yards.

   b. Mrs. Tran puts a fence around the rosemary. If the fence is 2 ft from the edge of the garden on each side, what is the perimeter of the fence?

I notice the unit here is feet, but the area I found from part (a) above was in yards.

$$\begin{aligned}\frac{5}{6}\text{ yd} &= \frac{5}{6} \times 1\text{ yd}\\ &= \frac{5}{6} \times 3\text{ ft}\\ &= \frac{15}{6}\text{ ft}\\ &= 2\frac{3}{6}\text{ ft}\\ &= 2\frac{1}{2}\text{ ft}\end{aligned}$$

I convert the $\frac{5}{6}$ yard into feet. The length of the rosemary plot is $2\frac{1}{2}$ feet.

One side of the fence:

$$2\frac{1}{2}\text{ ft} + 4\text{ ft} = 6\frac{1}{2}\text{ ft}$$

I now find the length of one side of the fence. Since the fence is 2 feet from the edge of the garden on each side, I add 4 feet to the side of the rosemary plot, $2\frac{1}{2}$ feet. Each side of the fence is $6\frac{1}{2}$ feet long.

Perimeter of the fence:

$$\begin{aligned}&6\frac{1}{2}\text{ ft} \times 4\\ &= (6\text{ ft} \times 4) + \left(\frac{1}{2}\text{ ft} \times 4\right)\\ &= 24\text{ ft} + \frac{4}{2}\text{ ft}\\ &= 24\text{ ft} + 2\text{ ft}\\ &= 26\text{ ft}\end{aligned}$$

I multiply one side of the fence, $6\frac{1}{2}$ feet, by 4 to find the perimeter.

The perimeter of the fence is 26 feet.