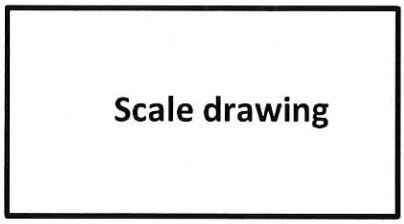
Key

Scale Ratio and solving proportions

- Reference pages ~~28~~ 72 and ~~29~~ 73 in your INB

1. Given: 2 cm in a picture corresponds to 50 m in actual length and dimensions of scale drawing below,
   Find: Actual dimensions of the rectangular picture



Proportion to solve for length	Proportion to solve for width
$\frac{2cm}{50m} = \frac{25cm}{L}$ $1250 = 2L$ $625m = L$	$\frac{2cm}{50m} = \frac{40cm}{W}$ $2000 = 2W$ $1000 = W$

What is the area of the actual picture? $625{,}000m^2$

Scale Factor

- Get out your Scale Factor Practice worksheet and follow steps 1 - 4.
- Also reference pages ~~25~~ and ~~35~~ in your INB
  ~~25~~ 74 & 75

Practice:

1. 2 cm of length in the picture corresponds to 150 meters in actual length. What is the scale factor?

$$\frac{0.02\text{m}}{150\text{m}} = \boxed{\frac{1}{7500}}$$

2. 6 inches of length in the blueprint corresponds to 60 feet of actual length. What is the scale factor?

$$\frac{0.5\text{ft}}{60\text{ft}} = \boxed{\frac{1}{120}}$$

3. 10 cm of length in the picture corresponds to 180 m of actual length. What is the scale factor?

$$\frac{0.1\text{m}}{180\text{m}} = \boxed{\frac{1}{1800}}$$

Unit Rate

- Value per ONE unit (i.e. bags per ONE hour)
- Also known as 'k'

Practice:

1. If a car travels 85 miles in two hours, what is the unit rate?

$85\text{mi} \div 2 = \boxed{42.5\text{ mi/hr}}$

2. Write an equation that represents the distance the car (from #1) travels, y, in x hours.

$y = 42.5x$

3. How long will it take for the car to travel 380 miles?

$X = Y/K \qquad X = 380/42.5 = \boxed{8.94\text{ hrs}}$

Sales and Discount

- Reference pink handout on page ~~28~~ 67 and blue handout on page ~~21~~ 64 in your INB (Butterfly method)

Sales price = original price - discount

Practice:

1. An item is on sale for $500. What is the original price if the discount is 3/8 off the original price?

$$500 = x - \frac{3}{8}x$$

$$\frac{500}{1} = \frac{5x}{8}$$

$$\frac{4000}{5} = \frac{5x}{5}$$

$$800 = x$$

$800

2. What is the discount if an item that was originally $350 is on sale for $295?

$$295 = 350 - x$$

$x = \$55$

3. The discount price for an item is $45. What is the original price if the discount is 1/5 off the original price?

$$45 = x - \frac{1}{5}x$$

$$\frac{45}{1} = \frac{4x}{5}$$

$$\frac{4x}{4} = \frac{225}{4}$$

$$\begin{array}{r} 2 \\ 45 \\ \times\ 5 \\ \hline 225 \end{array}$$

$x = \$56.25$