

2-1-18

Aim: SWBAT calculate distance using map scale.

HW: Packet Page 44

Review due Thursday

Test Friday 2/9/18

Do Now: Packet Page 40

- 4) In your gym class, the ratio of girls to boys is 2:3. If there are 65 students in your gym class, how many of them are girls?

G	G	B	B	B
2x		3x		
65				

$$2x + 3x = 65$$

$$\frac{5x}{5} = \frac{65}{5}$$

$$x = 13$$

$$2x = 2(13) = 26$$

Twenty-six students are girls.

- 5) The ratio of green marbles to yellow marbles is 4:7. If there are 253 marbles in the collection, how many of each color are there?

G	G	G	G	Y	Y	Y	Y	Y	Y
4x				7x					
253									

$$4x + 7x = 253$$

$$\frac{11x}{11} = \frac{253}{11}$$

$$x = 23$$

$$4x = 4(23) = 92$$

$$7x = 7(23) = 161$$

There are 92 green marbles and 161 yellow marbles.

- 6) John found out that the ratio of green M&M's to red M&M's in a 5 pound bag is 2:5. If there are 595 M&M's in a 5 pound bag, how many of them would you expect to be green?

G	G	R	R	R	R	R
2x		5x				
595						

$$2x + 5x = 595$$

$$\frac{7x}{7} = \frac{595}{7}$$

$$x = 85$$

$$2x = 2(85) = 170$$

I would expect 170 to be green.

AIM: SWBAT calculate distance using map scale.

DO NOW: Solve Algebraically.

If 3 bananas cost 89 cents, how much would a dozen bananas cost?

$$\begin{array}{r} \$ 0.89 \\ \hline 3 \text{ bananas} \end{array}$$

$$\$ 3.56$$

Notes.

Scale - gives the **relationship** between the **drawing's** dimensions and the **actual** dimensions.

- The dimensions of a **scale** model are **proportional** to the dimensions of the **actual** object.
- When given a scale you can **set up a proportion** to find missing information.
- REMEMBER to **BE CONSISTENT!!**

Example: Strawberry Point, Iowa has a strawberry sculpture that is 15 feet tall. If the scale of this model is 1 inch to 10 feet, how tall was the actual strawberry?

Let x = # of inches

Scale is 1 in. to 10 ft. BE CONSISTENT! $\left(\frac{\text{in}}{\text{ft}}\right) \frac{1}{10} = \frac{x}{15}$ (cross multiply and solve)

$$\begin{array}{r} 10x = 15 \\ \hline 10 \quad 10 \\ x = 1.5 \end{array}$$

You use a scale of **3 inches to 50 feet** to make scale models of buildings.

A building's actual height, h , is given. Find the model's height.

1) $h = 100$ ft

You Try! 2) $h = 240$ ft

$$\begin{array}{r} \frac{3 \text{ in.}}{50 \text{ ft.}} = \frac{x \text{ in.}}{100 \text{ ft.}} \\ \frac{50x = 300}{50} \\ x = 6 \end{array}$$

You use a scale of **3 inches to 50 feet** to make scale models of buildings.

A model's height, h , is given. Find the actual building's height.

3) $h = 18$ in.

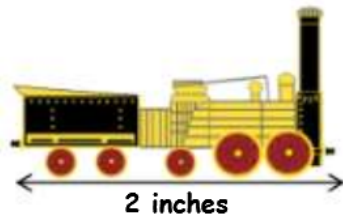
You Try! 4) $h = 32$ in.

$$\begin{array}{r} \frac{\text{model}}{\text{actual}} \end{array} \quad \frac{3 \text{ in.}}{50 \text{ ft.}} = \frac{18 \text{ in.}}{x \text{ ft.}}$$

$$\begin{array}{r} 3x = 900 \\ \hline 3 \quad 3 \\ x = 300 \end{array}$$

Solve each word problem. Show all work algebraically.

- 1) Your mom is repainting your younger brother's room. She is going to project the image shown below onto his wall so that she can paint an enlarged version as a mural. How long will the mural be if the projector uses a scale of 1 inch represents $2\frac{1}{2}$ feet on the wall?



$$\frac{1 \text{ in.}}{2\frac{1}{2} \text{ ft.}} = \frac{2 \text{ in.}}{x \text{ ft.}}$$

$$x = 5$$

- 2) The city of St. Louis is creating a welcome sign on a billboard for visitors to see as they enter the city. The following picture needs to be enlarged so that $\frac{1}{2}$ inch represents 7 feet on the actual billboard. Will it fit on a billboard that measures 14 feet in height?



$$\frac{\frac{1}{2} \text{ in.}}{7 \text{ ft.}} = \frac{1 \text{ in.}}{x \text{ ft.}}$$

$$2 \cdot \frac{1}{2} x = 7 \cdot 2$$

$$x = 14$$

- 3) The portrait company that takes little league baseball team photos is offering an option where a portrait of your baseball pose can be enlarged to be used as a wall decal. Your height in the portrait measures $3\frac{1}{2}$ inches. The company uses a scale where 1 inch on the portrait represents 20 inches on the wall decal.

A) Find the height of the wall decal.

B) If your actual height is 55 inches and you stand next to the wall decal, will it be larger or smaller than you?

HOMEWORK - MAP SCALES

Solve each problem ALGEBRAICALLY. Show all work!

- 1) You are building a model plane. The scale for the model is 1 inch = 125 feet. If the plane is 1,500 feet long, how long would the model be?

- 2) The distance on a park map between the Merry-go-Round and the Log Flume is 3 inches. The scale was 1 inch = 525 yards. What is the actual distance between the Merry-go-Round and the Log Flume?

- 3) A dolphin in an aquarium is 12 feet long. A scale model of the dolphin is 3 inches long. What is the scale factor of the model?

- 4) Danielle is creating a scale drawing of her room. The rectangular room measures $20\frac{1}{2}$ feet by 25 feet. If her drawing uses the scale 1 inch represents 2 feet of the actual room, will her drawing fit on an $8\frac{1}{2}$ by 11 inch piece of paper?