

2-1-19

Aim: SWBAT calculate distance using map scale.

HW: Packet Page 43 ???

Review due ???

Test ???

Do Now: Quiz

AIM: SWBAT calculate distance using map scale.

DO NOW: Solve Algebraically.

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

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)

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

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

$$\frac{3 \text{ in.}}{50 \text{ ft.}} = \frac{x \text{ in.}}{100 \text{ ft.}} \quad \frac{50x = 300}{50} \quad x = 6$$

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.

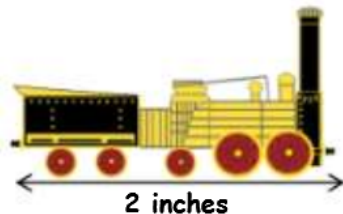
3) $h = 18$ in. You Try! 4) $h = 32$ in.

$$\frac{3 \text{ in.}}{50 \text{ ft.}} = \frac{18 \text{ in.}}{x \text{ ft.}}$$

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

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?

Extra Practice: Use the given map and map scale to answer questions. You will need your ruler!



- 1) Use a proportion to approximate the actual distance between Dallas, TX and Denver, CO.

$$\frac{\frac{1}{4} \text{ in.}}{85 \text{ mi}} = \frac{\quad}{x \text{ mi}}$$

- 2) Use a proportion to approximate the actual distance between St. Louis, MO and Reno, NV.
- 3) Use a proportion to approximate the actual distance between Seattle, WA and Buffalo, NY.
- 4) You take a flight from Buffalo, NY and have a stopover in St. Louis, MO. You then get on another plane to fly from St. Louis to Seattle, WA. What is the total distance covered in this trip?