12.5

SCALE DRAWINGS

Learning Target:

· I can use scale drawings to find actual distances.

· I can find scale factors.

DO NOW

Mark a dot to represent your current location. Imagine you are going to take a road trip this summer, but cannot travel more than 1500 miles from home. Where would you like to go? *(The distance from Los Angeles to New York is about 2800 miles.)*

DO NOW

How did you figure out how far you could go?

Vocabulary

SCALE DRAWING:

A _____, ___-dimensional drawing of an object.

SCALE MODEL:

A _____, ___-dimensional model of an object.

The measurements in scale drawings and models are _____ to the measurements of the actual object.

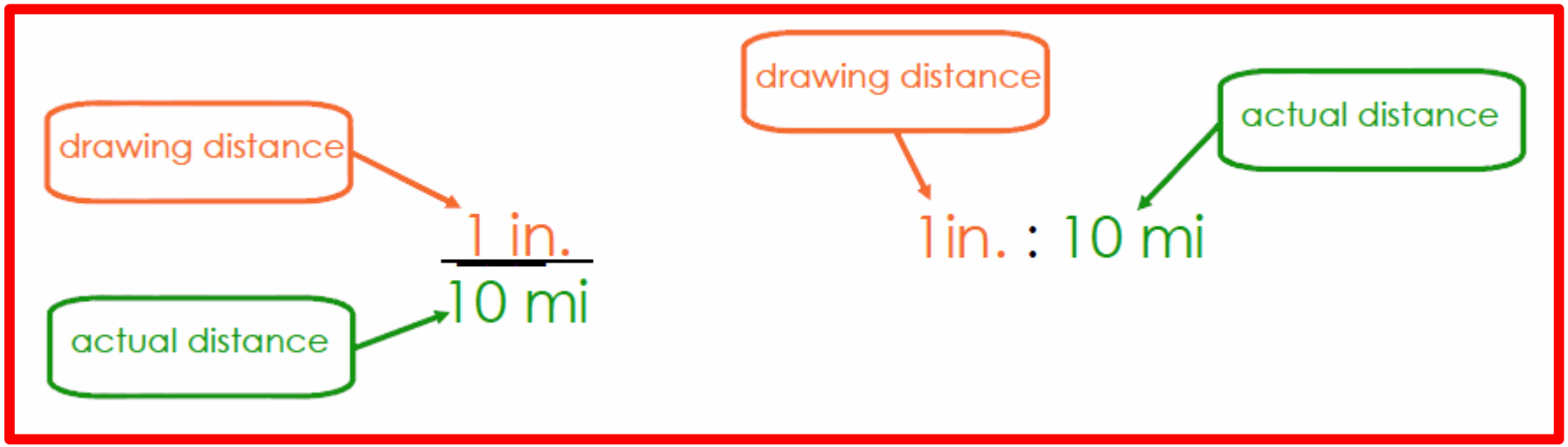
SCALE:

This gives the _____ that compares the measurements of the drawing/model with the actual measurements.

Vocabulary

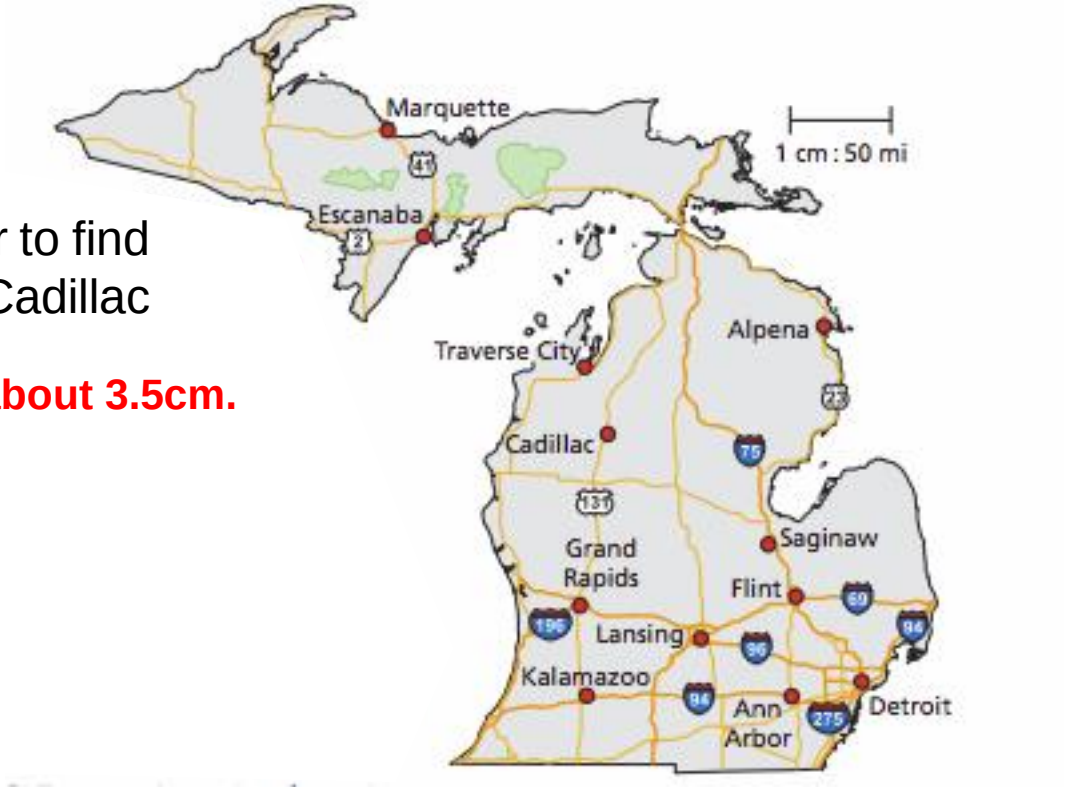
SCALE:

This gives the _____ that compares the measurements of the drawing/model with the actual measurements.



FINDING ACTUAL DISTANCE

1) What is the actual distance ***d*** between Cadillac and Detroit?



Step 1:

Use a centimeter ruler or protractor to find the distance on the map between Cadillac and Detroit.

The map distance is about 3.5cm.

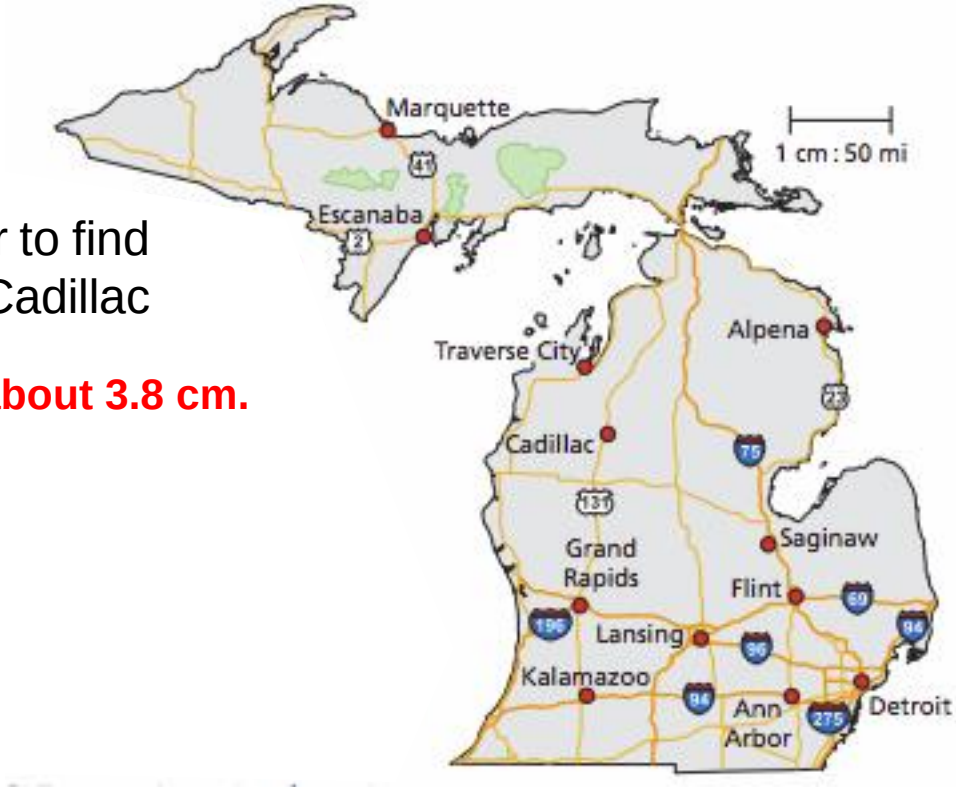
Step 2:

Use the scale to write and solve a proportion.

Therefore, the distance between Cadillac and Detroit is about _____ miles.

FINDING ACTUAL DISTANCE

2) What is the actual distance between Traverse City and Marquette?



Step 1:

Use a centimeter ruler or protractor to find the distance on the map between Cadillac and Detroit.

The map distance is about 3.8 cm.

Therefore, the distance between Traverse City and Marquette is about _____ miles.

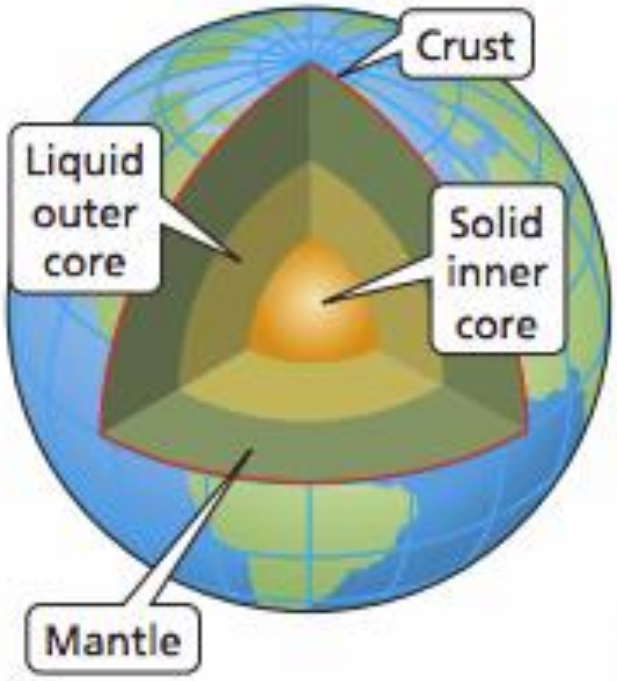
FINDING DISTANCE IN A MODEL

3) The liquid outer core of Earth is 2300 kilometers thick. A scale model of the layers of Earth has a scale of 1 in. : 500 km. How thick is the liquid outer core of the model?

Step 1:

Use the scale to write and solve a proportion in the form:

$$\frac{\text{model measurement}}{\text{actual measurement}}$$



So, the liquid outer core of the model is ____ thick.

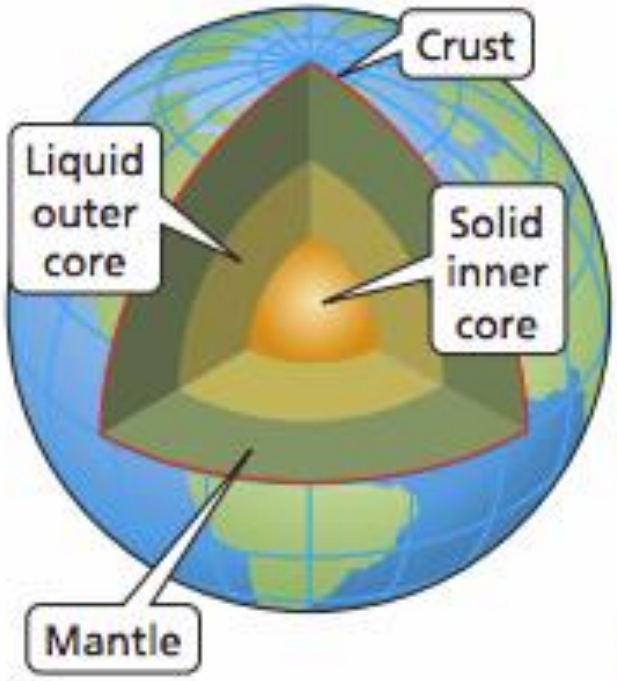
FINDING DISTANCE IN A MODEL

4) A scale model of the layers of Earth has a scale of 1 in. : 500 km. The mantle of Earth is 2900 kilometers thick. How thick is the mantle of the model?

Step 1:

Use the scale to write and solve a proportion in the form:

$$\frac{\text{model measurement}}{\text{actual measurement}}$$



So, the mantle of the model is ____ thick.

FINDING A SCALE FACTOR

A SCALE FACTOR is a _____ _____ when units are the same (units do not have to be written).

5) A scale model of the Sergeant Floyd Monument is 10 inches tall. The actual monument is 100 feet tall.

Step 1:

Use the scale to write and solve a proportion in the form:

$$\frac{\text{model measurement}}{\text{actual measurement}}$$

Step 2:

Convert the measurements of the scale to be the same unit and then simplify.

The scale factor is _____ .

FINDING A SCALE FACTOR

6) A drawing has a scale of 1mm : 20cm. What is the scale factor of the drawing?

Classwork

Find the missing dimension. Use the scale factor 1 : 8.

Item	Model	Actual
1. Statue	Height: 168 in.	Height _____ ft
2. Painting	Width: _____ cm	Width: 200 m
3. Alligator	Height: _____ in.	Height: 6.4 ft
4. Train	Length: 36.5 in.	Length: _____ ft

Classwork

5. The diameter of the moon is 2160 miles. A model has a scale of 1 in. : 150 mi. What is the diameter of the model?

Classwork

6. A map has a scale of 1 in. : 4 mi.

a. You measure 3 inches between your house and the movie theater. How many miles is it from your house to the movie theater?

b. It is 17 miles to the mall. How many inches is that on the map?