

**7.5**

# **Scale Drawings**

# 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?*

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# **Vocabulary**

## **SCALE DRAWING:**

A \_\_\_\_\_, \_\_\_\_-dimensional drawing of an object.

## **SCALE MODEL:**

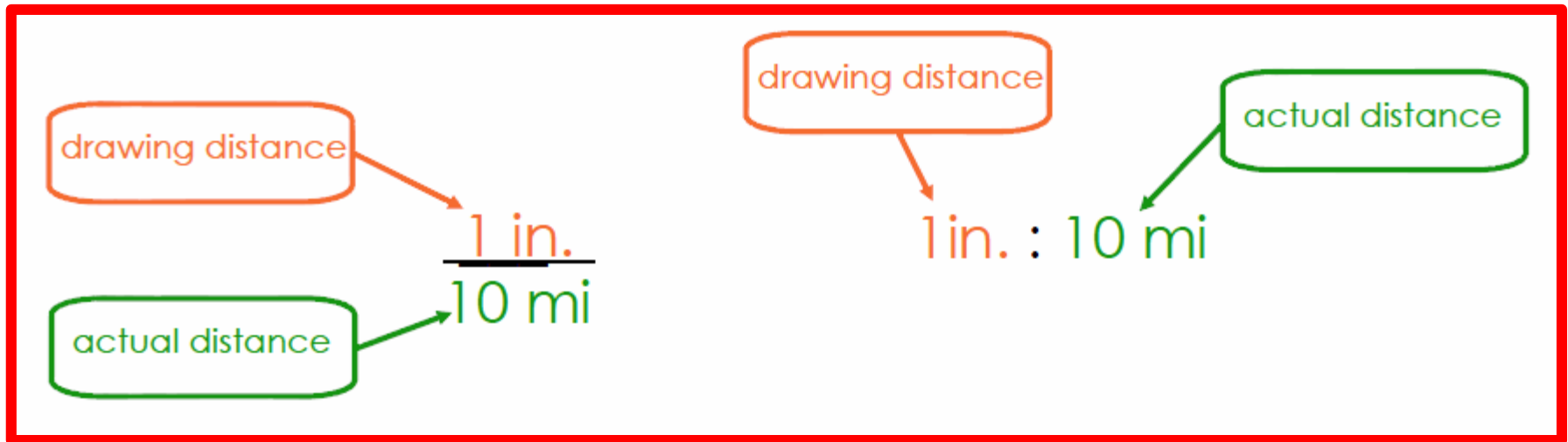
A \_\_\_\_\_, \_\_\_\_-dimensional model of an object.

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

# 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?

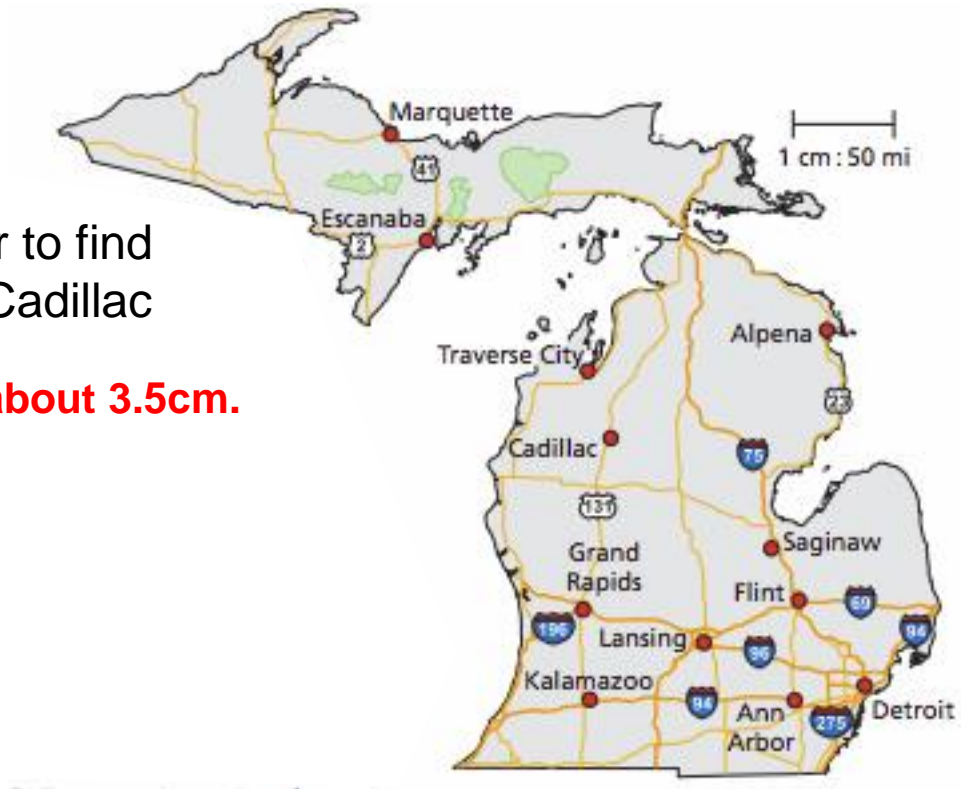
**Step 1:**

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.

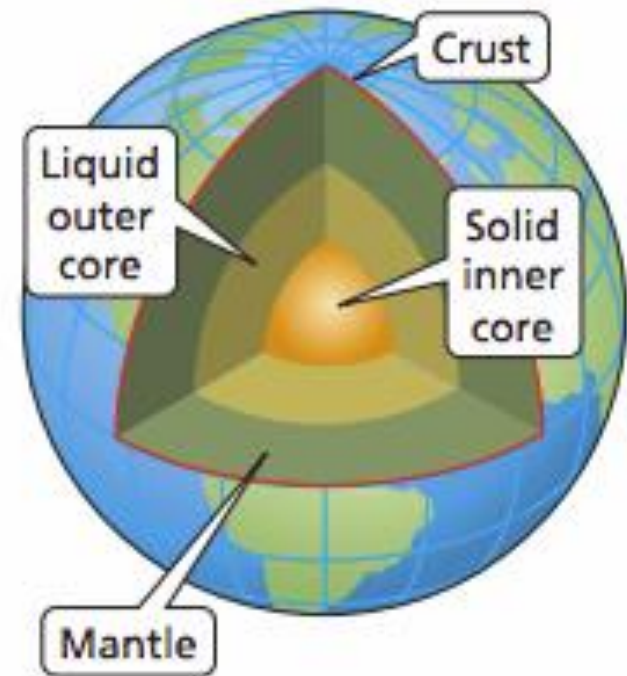
# FINDING DISTANCE IN A MODEL

- 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.



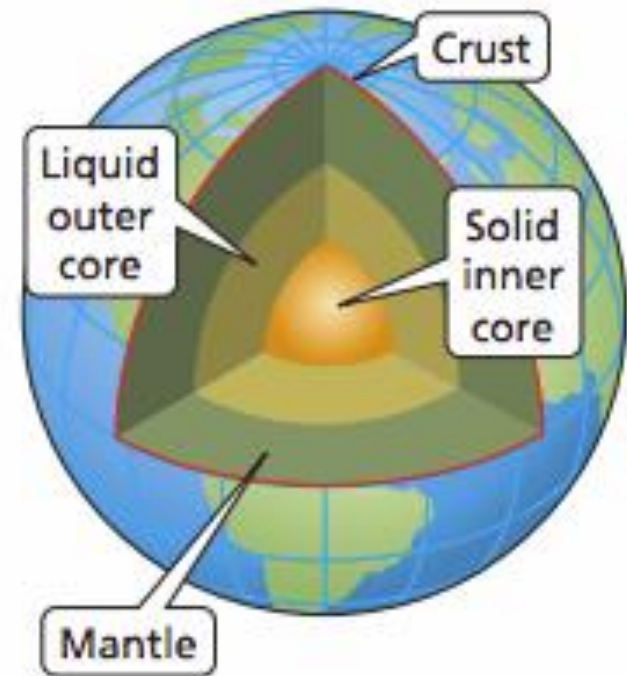
# FINDING DISTANCE IN A MODEL

- 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?