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UNIT 5 LESSON 13

**AIM**: SWBAT determine missing lengths of scale drawings.

**THINK ABOUT IT!**

On a map of the city, 2 inches represents 1 mile. Michelle is trying to plan out her trip from downtown to uptown. On the map, the distance is 16 inches. What is the actual distance that Michelle will travel from downtown to uptown? Solve for the distance in as many ways as you can.

Key Point

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**Interaction with New Material**

Ex.1) At the Chicago museum of science, there is an exhibit that shows a scale model of Chicago with trains running through the city. The scale on model says that every 3 inches on the model is equal to 8 feet in real life. One car of an “L” train in real-life is 36 feet long. What will be the length of the model of an “L” train if the train has 5 cars that are connected?

**PARTNER PRACTICE**

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| *Bachelor Level* |

1. On a map of the northeast United States, the map scale says that 1 centimeters = 5 miles. The distance shown on the map between New York City and Rochester is 5 cm. What is the actual distance?
   1. 520 miles
   2. 502 miles
   3. 250 miles
   4. 205 miles
   5. 10 miles
2. The distance between San Diego, CA and NYC is 3,200 miles. If a United States map has a scale that says 1 inch = 400 miles, how many inches apart will San Diego and NYC be on the map?

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| *Master Level* |

1. On a map of the northeast United States, the map scale says that 1 centimeters = 5 miles. The distance shown on the map between New York City and Buffalo is 5.8 cm. Read each statement below and determine whether it is “True” or “False.”

|  |  |  |
| --- | --- | --- |
| Statement | True | False |
| The actual distance is 5.8 times less than the distance on the map |  |  |
| The actual distance can be found by dividing 5 by 5.8 |  |  |
| The actual distance can be found by multiplying 5 by 5.8 |  |  |
| The actual distance is about 30 miles |  |  |

**INDEPENDENT PRACTICE**

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| *Bachelor Level* |

1. A map has a map scale that say “1 inch = 10 miles.” The distance between two cities on the map is 5 inches. Which proportion could you use to solve for the distance between the two cities, in miles?



1. What equation could you write to solve the problem in question 1? Solve your equation and the proportion you picked to verify they are equivalent methods of solving.

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Work:

1. On a map, the distance between AFBMS and Burger King is ½ foot. If the actual distance is 200 feet, what scale factor was used to create the map?
   1. 100
   2. 400
   3. 16,000

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| *Master Level* |

1. On a map of Tennessee, the map scale is 5 cm = 85 miles. The town of Murfreesboro is 2 centimeters away from Nashville on the map. How far apart are the two cities in real life?
2. Miguel is thinking of taking a road trip from Tucson, AZ to the Grand Canyon. He will need to pass through Phoenix and Flagstaff to get to the Grand Canyon. The distance on the map shows it is 3 inches from Tucson to Phoenix and 2.5 inches from Phoenix to Flagstaff. From Flagstaff, it is another 1 ¼ inches to the Grand Canyon. How many miles will he drive if the scale on the map says that 1 inch = 32miles?
3. Miguel decided that he didn’t want to drive anymore so he instead bought a plane ticket. On the plane, it showed a map of the flight. The map said that they had 215 miles to go to complete the flight. The map showed the scale of 5 miles equal to 1 centimeter on the map. If the screen is 40 centimeters long, can Miguel see his destination on the screen?

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| *PhD Level* |

1. The distance between Mr. Friedline’s hometown and NYC is 24 centimeters on the road map. The map scale indicates that 5 cm represents 100 kilometers. If Mr. Friedline drives at an average speed of 80 kilometers per hour, how long will it take him to get home from NYC?

**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

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| Self-assessment | I mastered the learning objective today. | I am almost there. | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there. | You need more practice and feedback. |

1. A Cadillac Escalade is 16 ft. long. The engineers are trying to create a model by using a scale of 1 inch of the model corresponds to 4 feet on the actual car. Select all of the statements below that are true.

a. The model is 4 times smaller than the actual car

b. The actual car is 4 times smaller than the model

c. The model will be 64 inches long

d. The model will be 4 inches long

2) The distance from Town A to Town B on a map is 3 inches. The actual distance from Town A to Town B is 8 miles. Write an equation and use it to determine the actual distance from Town A to Town C if the distance on the map is 5 inches.

Equation: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Actual Distance: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_