

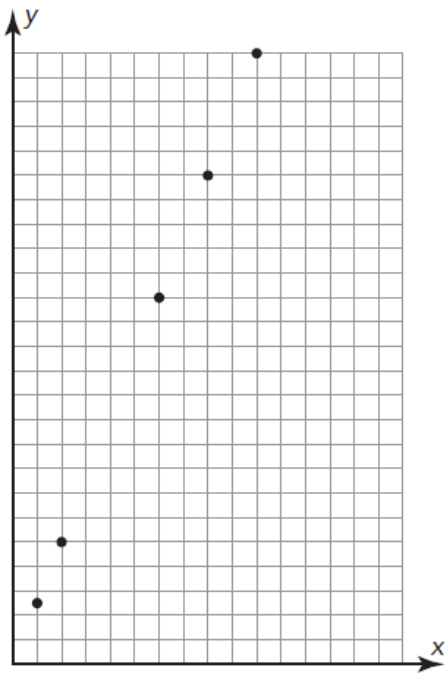
Objective **Multiple Representations of Unit Rates**

Warm-Up



For graph, determine if it represents equivalent ratios. Explain your reasoning.

1.

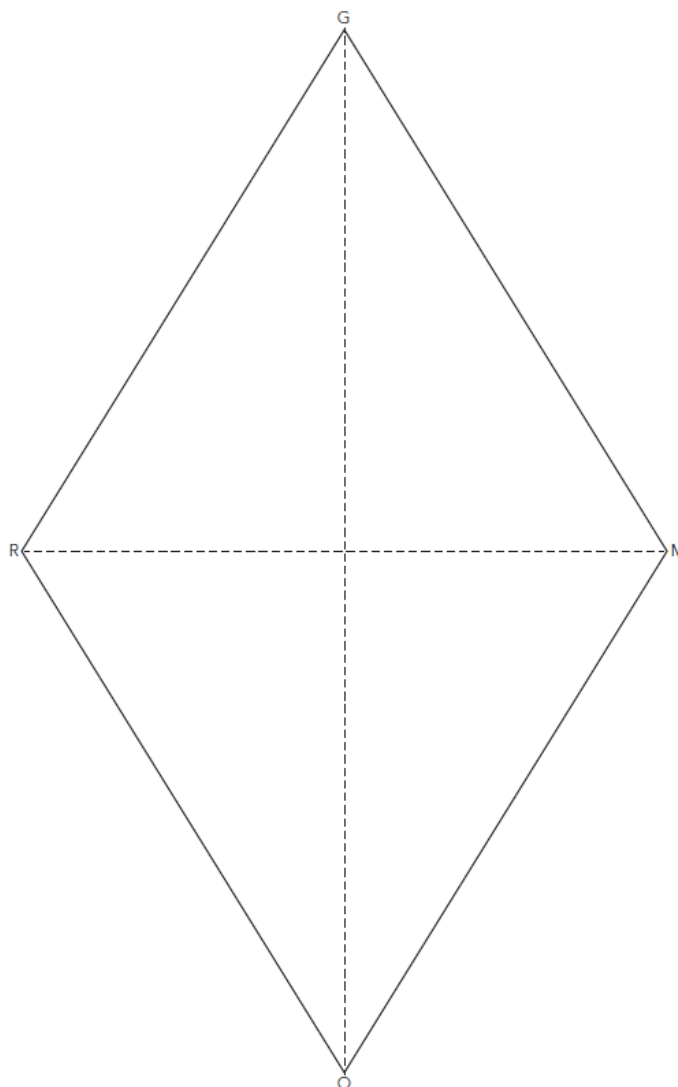




A rhombus is considered a Golden Rhombus when the diagonals are in a very specific ratio, known as w or ϕ (pronounced "fi" or "fee").

A Golden Rhombus is shown and your task is to determine the ratio of the diagonals.

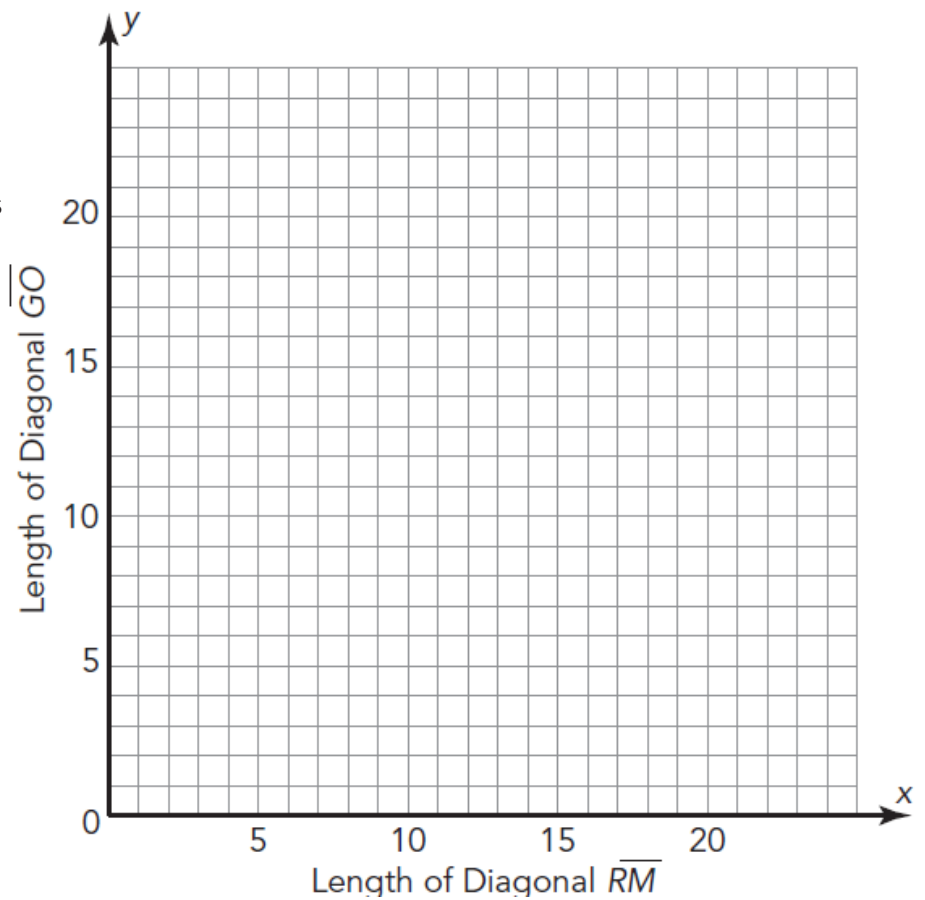
A Golden Rhombus



1. Use standard and non-standard tools to measure the lengths of the diagonals using 6 different units of measure and record them in the table. Be sure to include inches and centimeters as two of your units.

Unit of Measure	Length of Diagonal \overline{GO}	Length of Diagonal \overline{RM}

2. Graph the lengths of the diagonals on the coordinate plane.



3. Use a ruler to connect the ratios plotted on the graph. Describe the pattern that the points appear to follow.

4. What does the pattern of ratios on the graph tell us about the ratios?

5. Write two unit rates that relate the length of diagonal GO and the length of diagonal RM.

6. Describe where you can locate the unit rates on the graph.

7. Suppose you measure the Golden Rhombus in units called "ujeni". Use the unit rates to answer each question.

a. If the length of diagonal GO is 15 ujeni, what is the length of diagonal RM in ujeni?

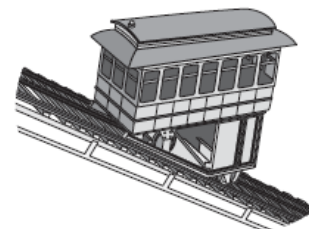
b. If the length of diagonal RM is 15 ujeni, what is the length of diagonal GO in ujeni?



Opened in 1887 and designed to move coal workers from their homes atop Mt. Washington down to the coal factories along the river in Pittsburgh, Pennsylvania, the Duquesne Incline still serves as a mode of transportation for commuters who live in the area.

An incline is like a trolley that goes up and down a mountain.

Jasmine takes the incline to work each morning. The incline is 800 feet long, and it takes 90 seconds to ride from the top of Mt. Washington to the bottom.



1. Identify which of the following statements are true. Explain your reasoning for each.

a. Jasmine travels approximately 178 feet every 20 seconds.

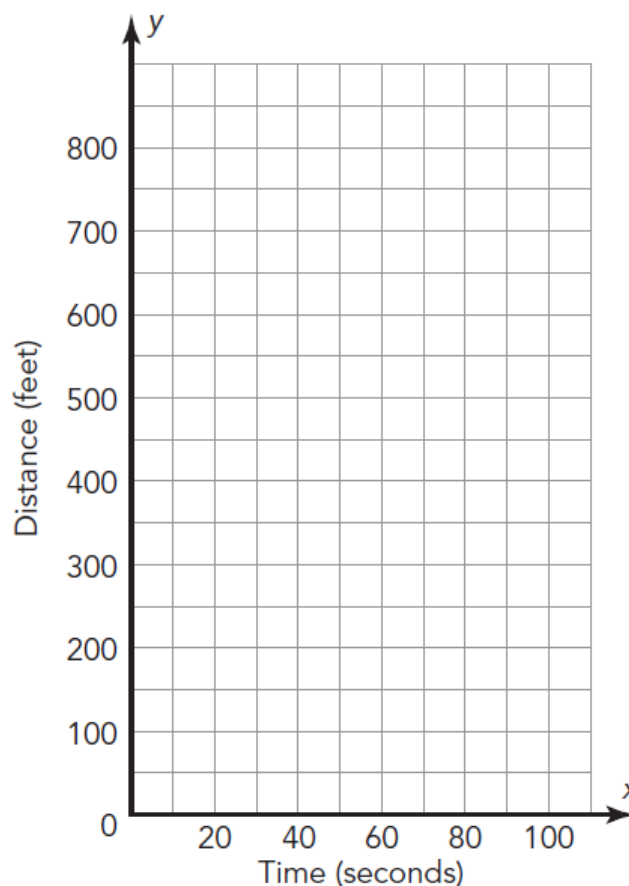
b. She travels approximately 600 feet per minute.

c. In 75 seconds, Jasmine travels approximately 750 feet.

d. She travels approximately 44 feet every 5 seconds.

e. She travels 8.9 feet per second.

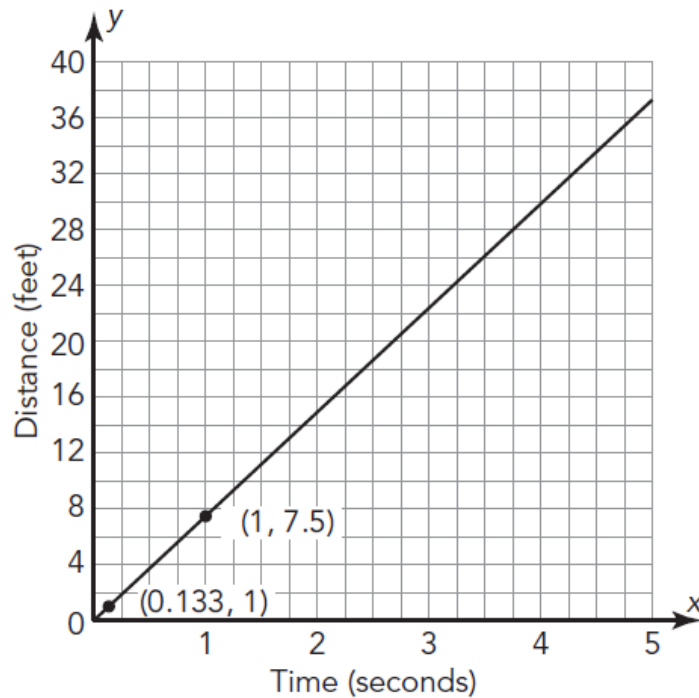
2. Plot the correct ratios from Question 1 on the coordinate plane. How can you use the graph to verify correct and incorrect statements from Question 1?



Show You Know

Once Upon a Unit Rate

Write a story with unit rates that corresponds to this graph. Include 3 questions and their answers that can be solved using the graph. Be prepared to share your story with the rest of your class.



**LESSON 6.3b**
Seeing Things Differently**Objective** Multiple Representations of Unit Rates**Practice**

- Which of the following is **not** an example of a rate?
 - 2 cups for every 3 cups
 - 120 beats per minute
 - 16 ounces for \$2
 - 8 inches per 12 hours
- Ling is driving at a constant speed of 55 miles per hour. At that rate, how long will it take him to drive 275 miles?
 - 4 hours
 - 5 hours
 - 6 hours
 - 7 hours
- Callie's family spends an average of \$70 per month on electricity. At that rate, what can Callie's family expect to pay for electricity over 1 year?
 - \$70
 - \$480
 - \$700
 - \$840
- Mandy is on a bus that is traveling at a constant speed of 60 miles per hour. How far will she travel in $3\frac{1}{2}$ hours?
 - 185 miles
 - 195 miles
 - 210 miles
 - 230 miles
- A party mix has 8 ounces of pretzels, 3 ounces of mini marshmallows, and 6 ounces of nuts. How many ounces of nuts are there for every ounce of pretzels?
 - $\frac{6}{17}$ ounce of nuts for 1 ounce of pretzels
 - $\frac{3}{8}$ ounce of nuts for 1 ounce of pretzels
 - $\frac{1}{2}$ ounce of nuts for 1 ounce of pretzels
 - $\frac{3}{4}$ ounce of nuts for 1 ounce of pretzels
- Nate biked 54 miles in $4\frac{1}{2}$ hours. What was Nate's average speed in miles per hour?
 - 11 miles per hour
 - 12 miles per hour
 - 13 miles per hour
 - 14 miles per hour

