

5.1 Ratios and Rates

- Objectives:** 1. find ratios, rates, and unit rates.
2. find ratios and rates involving ratios of fractions.

A _____ is a comparison of two quantities using division.

Ex:

A _____ is a ratio of two quantities with different units.

Ex:

A rate with a denominator of 1 is called a _____.

Ex:

EXAMPLE 1 Finding Ratios and Rates

There are 45 males and 60 females in a subway car. The subway car travels 2.5 miles in 5 minutes.

a. Find the ratio of males to females.

b. Find the speed of the subway car.

EXAMPLE 2 Finding a Rate from a Ratio Table

The ratio table shows the costs for different amounts of artificial turf. Find the unit rate in dollars per square foot.

Amount (square feet)	25	100	400	1600
Cost (dollars)	100	400	1600	6400

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Remember

The abbreviation ft^2 means *square feet*.

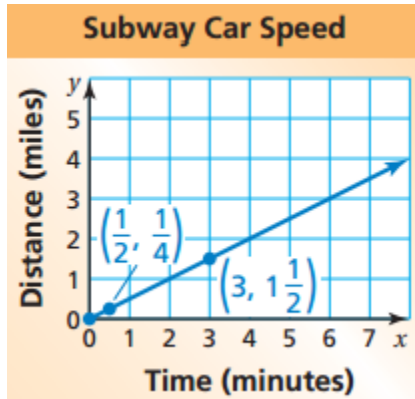
A _____ has at least one fraction in the numerator, denominator, or both.

Ex:

You will need to simplify complex fractions when finding ratios and rates.

EXAMPLE 3 Finding a Rate from a Graph

The graph shows the speed of a subway car. Find the speed in miles per minute. Compare the speed to the speed of the subway car in Example 1.



Step 1: Choose and interpret a point on the line

Step 2: Find the speed

On Your Own / Classwork:

1. In Example 1, find the ratio of females to males.
2. In Example 1, find the ratio of females to total passengers
3. The ratio table shows the distance that the International Space Station travels while orbiting Earth. Find the speed in miles per second.

Time (seconds)	3	6	9	12
Distance (miles)	14.4	28.8	43.2	57.6

4. You use the point $(3, 1\frac{1}{2})$ to find the speed of the subway car. Does your answer change? Explain your reasoning.