

Week 1

MA123: Mathematical Reasoning & Modeling
(Spring 2021)

Instructor: Emmanuel Thompson

Ratios & Rates

Week 1

MA123: Mathematical Reasoning & Modeling
(Spring 2021)

Ratios & Rates:

- Ratios are expressions that compare two quantities.
- Rates are a special type of ratio.
 - It is used to describe a relationship between two related quantities in different units.

Instructor: Emmanuel Thompson

Example 1:

Simplify the rate of cans of soda compared to people

$$\frac{54 \text{ cans of soda}}{4 \text{ people}}$$

54 27 \Rightarrow 27
4 2 2

Cans of Soda
people

Example 2:

Enter the ratio as a fraction in lowest terms

45 minutes to 10 minutes

$$\frac{45}{10} = \frac{9}{2}$$

Example 3:

Write the ratio as a ratio of whole numbers in lowest terms

\$0.40 to \$0.50

$$\frac{0.40}{0.50} = \frac{0.40 * 10}{0.50 * 10}$$
$$= \frac{4.0}{5.0} = \frac{4}{5}$$

Example 4:

Jayda takes 4 hours to deliver 248 newspapers on her paper route. What is the rate per hour at which she delivers the newspapers?

$$\frac{248}{4} = 62$$

Example 5:

Which is the better deal?

○ \$2.49 for 8 liters

● \$3.69 for 12 liters

→ better deal!

$$\frac{2.49}{8} = \$0.31125 \text{ per liter}$$

$$\frac{3.69}{12} = \$0.3075 \text{ per liter}$$