Ratios/Rates/Proportions

Vocabulary: Study the list on Quizlet

Ratios:
Write ratios three ways in lowest terms.
Ex: Write the ratio of suns to smiley faces in simplest form.

Ratio Tables and Graphing:
Complete the ratio table and graph.
Ex: 3 cups of sugar are needed for every 2 cups of flour.
Ex: Anthony can walk 4 miles in 3 hours
Double Ratio Number Line:

Ex: Josh spends $5 for 3 candy bars. He if spent $45, how many candy bars did he buy?

Candy Bars ——— Price

Tape Models:

Ex: The ratio of boys to girls is 2 to 3. There are a total of 40 boys and girls. How many boys are there?

Boys
Girls

Ex: The ratio of chickens to goats is 8 to 3. If there are 21 goats, how many chickens are there?

Chickens
Goats

Ex: There are 5 pecans for every 3 almonds. There are 18 more pecans than almonds. How many almonds are there?

Pecans
Almonds
Proportions:

Proportion or not? \[ \frac{3}{8} = \frac{2}{5} \quad \frac{2}{3} = \frac{4}{6} \]

Labels match up and down or across but not diagonally.

\[ \frac{2 \text{ girls}}{5 \text{ boys}} = \frac{8 \text{ girls}}{20 \text{ boys}} \quad \text{or} \quad \frac{2 \text{ girls}}{8 \text{ girls}} = \frac{5 \text{ boys}}{20 \text{ boys}} \quad \text{not} \quad \frac{2 \text{ boys}}{5 \text{ girls}} = \frac{8 \text{ girls}}{20 \text{ boys}} \]

Solve each proportion:

\[ \frac{2}{5} = \frac{x}{15} \quad \frac{8}{10} = \frac{12}{x} \quad \frac{2}{7} = \frac{x}{8} \]

Word Problems: 5 bottles can hold 66 ounces of shampoo. How many ounces can 2 bottles hold? Set up a proportion and solve.
Unit Rates:

1 ‘per’ ‘each’ ‘for every’ \[ \frac{\text{unit}}{\text{denominator}} = \frac{\text{unit}}{1} \] 1 must be in the denominator

Alice can type 300 words in 4 minutes. What is the unit rate of words per minute?

Check your answer by multiplying:

Sandra buys 5 yards of fabric to make 10 change purses. How much fabric does she need for each change purse?

Check your answer by multiplying:

Unit Prices: Cost for 1 item

\[ \frac{\text{\$ per item}}{\text{item}} = \frac{\text{\$ per item}}{1} \]

32 lollipops sell for \$8. What is the unit price?

Find the price per roll to determine which package is the better buy?

\$4.96 \hspace{1cm} \$19.80
Percents:

\[
is \quad \frac{\text{of}}{\text{of}} = \frac{\%}{100}\]

What is 45\% of 180?

60\% of what number is 18?

What percent of 80 is 124?

\[
\frac{\text{part}}{\text{whole}} = \frac{\%}{100}\]

There are 80 skittles in a bag. 20\% of them are red. How many skittles are red?

A bottle contains 45\% pure juice and the rest water. How many ounces of pure juice are in a 30 ounce bottle?

There are 85 kids wearing hats in school today. This is 15\% of the student population. How many kids are in the school?