Notes:

Proportional Reasoning Day 2

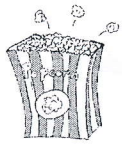
Created for you by Ms. Nhotsoubanh

How can ratios and proportions help you decide whether things are "fair"?

- By determining if the two ratios are equivalent.

Are these situations proportional?

Example 1: You pay $5 for two boxes of popcorn at Sayville Movie Theater. Your friend pays $7.50 for 3 boxes of popcorn at the same place. Are the prices fair? Explain.



"me"

$\frac{\$}{\text{amount}} = \text{unit rate}$

$\frac{\$5}{2 \text{ boxes}} = \frac{\$2.50}{1 \text{ box}}$

"Friend"

$\frac{\$7.50}{3 \text{ boxes}}$

$= \frac{\$2.50}{1 \text{ box}}$

The prices are the same and fair.

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Example 2: You get 75 points for answering 15 questions correctly on a test. Your friend gets 90 points for answering 18 questions correctly. Is this fair? Explain.

you $\frac{75 \text{ pts}}{15 \text{ questions}} = \frac{5 \text{ pts}}{1 \text{ question}}$

friend $\frac{90 \text{ pts}}{18 \text{ questions}} = \frac{5 \text{ pts}}{1 \text{ question}}$

The tests are fair b/c each question is worth 5 points.

Example 3: You pay $184 for 2 tickets to a concert. Your friend pays $266 for 3 tickets to the same concert. Is that fair? Explain.

$\frac{\$184}{2 \text{ tickets}} = \frac{\$92}{1 \text{ ticket}}$ → you

$\frac{\$266}{3 \text{ tickets}} = \frac{\$88.67}{1 \text{ ticket}}$ → friend

This is not fair b/c your ticket is more expensive than your friend's by $3.33.

Example 4: Leah paid $5.60 for an 8 ounce mocha Frappuccino. Joe paid $9.40 for a 12 ounce caramel Frappuccino.

- Who paid less per ounce?
- How much less did they pay? $ amount

Leah: $\frac{\$5.60}{8 \text{ oz}} = \frac{\$0.70}{1 \text{ oz}}$

Joe: $\frac{\$9.40}{12 \text{ oz}} = \frac{\$0.78}{1 \text{ oz}}$

Leah paid less than Joe per oz of frappuccino by 8 cents.

Example 5: Jesse, a chef, increases the amount of ingredients in a recipe to make sure that it is proportional. Write a proportion that can be used to fine the amount of tomatoes needed for 6 cups of black beans.

	Original Recipe	New Recipe
Black Beans	1.5 cups	6 cups
Tomatoes	1 tomato	x tomatoes

$\frac{1 \text{ tomato}}{1.5 \text{ cups black beans}} = \frac{x}{6 \text{ cups}}$

$\frac{1.5x}{1.5} = \frac{6}{1.5}$

$x = 4$ tomatoes