2-6 Notes

Ratios and Proportions

Example 1: Determine whether the ratios $\frac{24}{36}$ and $\frac{12}{18}$ are equivalent ratios. Write yes or no. Justify your answer. equivalent ratios. Write yes or no. Justify your answer.

er the ratios
$$\frac{24}{36}$$
 and $\frac{12}{18}$ are no. Justify your answer. $\frac{24}{36} = \frac{2}{3}$

$$\frac{12}{18} = \frac{2}{3}$$

Exercises

Determine whether each pair of ratios are equivalent ratios. Write yes or no.

1.
$$\frac{1}{2}$$
, $\frac{16}{32}$

$$\begin{array}{c}
2, \frac{5}{8}, \frac{10}{15} \\
10 \\
15 \\
2
\end{array}$$

$$3.\frac{10}{20},\frac{25}{49}$$

$$= 1$$

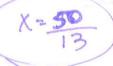
$$25$$

$$49$$
Veducad

Means-Extremes Property of Proportions

For any numbers a, b, c, and d, if $\frac{a}{b} = \frac{c}{d}$, then ad = bc.

Example: Solve $\frac{x}{5} = \frac{10}{13}$.



Solve each proportion. If necessary, round to the nearest hundredth.

1.
$$\frac{-3}{x} = \frac{2}{8}$$

$$2.\frac{4}{b-2}=\frac{4}{12}$$

$$3. \frac{1.5}{x} = \frac{12}{x}$$

Use a proportion to solve each problem.

10. MODELS To make a model of the Guadeloupe River bed, Hermie used 1 inch of clay for 5 miles of the river's actual length. His model river was 50 inches long. How long is the Guadeloupe River?





11. EDUCATION Josh finished 24 math problems in one hour. At that rate, how many hours will it take him to complete 72 problems?

2-7 Percent of Change

Percent of Change When an increase or decrease in an amount is expressed as a percent, the percent is called the percent of change. If the new number is greater than the original number, the percent of change is a percent of increase. If the new number is less than the original number, the percent of change is the percent of decrease.

Example 1: Find the percent of increase.

original: 30 new: 66

Step 1: find the amount of change

Example 2: Find the percent of decrease.

new: 22 original: 48

step 1: 48-22 = 26

Step 2: find the percent of increase by dividing amount of change by original number.

36 = 1,2 or 120% 30 Increase

step 2: $\frac{26}{48} = 54.17\%$

Exercises

State whether each percent of change is a percent of increase or a percent of decrease. Then find each percent of change. Round to the nearest whole percent.

in crease 1. original: 50 new: 80

new: 80

2. original: 90 change new: 100 = 10 3. original: 45 45 - 20 new: 20 = 25

4. VIDEOS The original selling price of a new sports video was \$65.00. Due to the demand the price was increased to \$87.75. What was the percent of increase over the original price?

87.75-65

22.75 = ,35 = 35 % Increase

5. SCHOOL A high school paper increased its sales by 75% when it ran an issue featuring a contest to win a class party. Before the contest issue, 10% of the school's 800 students bought the paper. How many students bought the contest issue?

- 1 (800) = 80 = 75% of 80 = 60 more +60

6. BASEBALL Baseball tickets cost \$15 for general admission or \$20 for box seats. The sales tax on each ticket is 8%. What is the final cost of each type of ticket, 20 (1.08)

42 \$21.60