Academic Algebra 1 Name_____ ID: 1

Ch3 CW Review #2 (proportions 2024)

Date_____ Period____

Grading: each problem is 8 points

Solve AND CHECK each proportion

1) $\frac{6}{3} = \frac{n-10}{8}$

$48 = 3(N-10)$

$48 = 3N - 30$

$+30 \quad +30$

$\frac{3N}{3} = \frac{78}{3}$

$N = 26$

C: $\frac{6}{3} = \frac{26-10}{8}$

$2 = \frac{16}{8}$

$2 = 2$ ✓

2) $\frac{-2}{x+5} = \frac{6}{2x-5}$

$-2(2x-5) = 6(x+5)$

$-4x + 10 = 6x + 30$

$+4x \quad +4x$

$10 = 10x + 30$

$-30 \quad -30$

$\frac{-20}{10} = \frac{10x}{10}$

$x = -2$

C: $\frac{-2}{-2+5} = \frac{6}{2(-2)-5}$

$\frac{-2}{3} = \frac{6}{-9}$

$-\frac{2}{3} = -\frac{2}{3}$ ✓

$-.66 = -.66$

3) Write the correct ratios: A school has 200 freshman, 250 sophmore, 250 juniors, and 300 seniors.

a) What is the ratio of freshman to sophmores? $\frac{\text{FRESH}}{\text{SOPH}} = \frac{200}{250}$ reduce → $\boxed{4/5}$

b) What is the ratio of freshman to seniors? $\frac{\text{FRESH}}{\text{SEN}} = \frac{200}{300}$ reduce → $\boxed{2/3}$

c) What is the ratio of underclassman (which exclude seniors) to all students.

$\frac{\text{UNDER}}{\text{TOTAL}} = \frac{200+250+250}{200+250+250+300} = \frac{700}{1,000}$ reduce → $\boxed{7/10}$

Word problem. Clearly show work -- define your variable, label your ratios/proportions, and answer in a sentence.

4) A recipe for ~~brownies~~ cookies calls for 2.25 cups of flour to make 36 cookies. How many cups of flour are needed to make 48 cookies? PROVIDE A PROPORTION. SOLVE.

KI: label → $\frac{\text{FLOUR}}{\text{COOKIES}} = \frac{2.25}{36} = \frac{x}{48}$ ← solve by cross multiply

$\boxed{x = \#\text{ of cups of flour}}$

$\frac{2.25(48)}{36} = \frac{36x}{36}$

$\boxed{x = 3}$

Sentence: It takes 3 cups flour to make 48 cookies

5) The ratio of weight on the moon to weight on Earth is 1 : 8. How many pounds would a 240-lb man weigh on the moon? PROVIDE A PROPORTION. SOLVE.

KI: $\frac{\text{MOON}}{\text{EARTH}} = \frac{1}{8} = \frac{x}{240}$ ← Solve

$\frac{240}{8} = \frac{8x}{8}$

$x = 30$

$\boxed{x = \text{weight on moon (lbs)}}$

Sentence: The man weighs 30lbs on the moon.

Solve the percent problem using either PROPORTION METHOD or EQUATION METHOD.
Clearly show work!! Round to units (i.e. xx) Circle answer and include units.

6) 108 inches is 30% of what?

Proportion

$\frac{IS}{OF} = \frac{\%}{100}$

$\frac{108}{N} = \frac{30}{100}$

$\frac{10800}{30} = \frac{30N}{30}$

$N = 360\,IN$

EQUATION

$\frac{108}{0.30} = \frac{0.30 \cdot N}{0.30}$

$N = 360\,IN$

7) 68.6 m is what percent of 28 m?

Proportion

$\frac{68.6}{28} = \frac{P}{100}$

$\frac{6860}{28} = \frac{28P}{28}$

$P = 245\%$

EQ

$\frac{68.6}{28} = \frac{P \cdot 28}{28}$

$P = 2.45$

$P = 245\%$

8) 170% of what is 25.5 grams?

Proportions

$\frac{25.5}{N} = \frac{170}{100}$

$\frac{2550}{170} = \frac{170N}{170}$

$N = 15\,gms$

EQ

$\frac{1.70 \cdot N}{1.7} = \frac{25.5}{1.7}$

$N = 15\,gms$

9) What is 5% of 160 minutes?

Proportion

$\frac{N}{160} = \frac{5}{100}$

$\frac{100N}{100} = \frac{800}{100}$

$N = 8\,MIN$

EQ

$N = 0.05 \cdot 160$

$N = 8\,MIN$

10) 5 hours is what percent of 62.5 hours?

Proportion

$\frac{5}{62.5} = \frac{P}{100}$

$\frac{500}{62.5} = \frac{62.5P}{62.5}$

$P = 8\%$

EQ

$\frac{5}{62.5} = \frac{P \cdot 62.5}{62.5}$

$P = 0.08$

$P = 8\%$

11) What is 90% of $33.32?

Proportion

$\frac{N}{33.32} = \frac{90}{100}$

$\frac{100N}{100} = \frac{2998.8}{100}$

$N = \$29.99$

OR

$N = \$30$

EQ

$N = 0.9 \cdot 33.32$

$N = \$29.99$

OR

$N = \$30$