Writing Proportions

Solving Proportions

Tell whether the ratios are proportional.

1. $\frac{8}{9} = \frac{40}{45}$

2. $\frac{4}{12} = \frac{7}{20}$

3. A particular shade of paint is made by mixing 2 parts red paint and 5 parts blue paint. To make this shade, Jackson mixed 7 quarts of red paint and 17.5 quarts of blue paint. Did he mix the correct shade? Explain.

Solve for x.

4. $\frac{3}{9} = \frac{5}{x}$

5. $\frac{2}{x} = \frac{-5}{6}$

6. $\frac{-4}{9} = \frac{7}{x}$

7. $\frac{10}{x} = \frac{52}{13}$

Write a proportion for each situation below. Then, solve.

1. The ratio of teachers to students at the middle school is 1: 12. If there are 1080 students at the school, how many teachers are there?

2. Four gallons of gasoline weigh 25 pounds. How much does 15 gallons of gasoline weigh?

3. On a certain day, the exchange rate was 100 U.S. dollars for 74 euros. How many U.S. dollars were 481 euros that day?

4. The photo shop can develop 1024 photos in 8 hours. At this rate, how long will it take to develop 160 photos?

Writing Proportions

ANSWER KEY!

Solving Proportions

Tell whether the ratios are proportional.

1. $\frac{8}{9} = \frac{40}{45}$

$8(45) = 9(40)$
$360 = 360$

YES, they are proportional!

2. $\frac{4}{12} = \frac{7}{20}$

$4(20) = 12(7)$
$80 = 84$

NO, they are not proportional!

3. A particular shade of paint is made by mixing 2 parts red paint and 5 parts blue paint. To make this shade, Jackson mixed 7 quarts of red paint and 17.5 quarts of blue paint. Did he mix the correct shade? Explain.

$\frac{2}{5} = \frac{7}{17.5}$ $\quad 2(17.5) = 5(7)$
$35 = 35$

Yes, he mixed the correct shade because the parts were mixed in the correct proportion

Solve for x.

4. $\frac{3}{9} = \frac{5}{x}$

$3x = 9(5)$
$3x = 45$

$x = 15$

5. $\frac{2}{x} = \frac{-5}{6}$

$-5x = 2(6)$
$-5x = 12$

$x = -2.4$

6. $\frac{-4}{9} = \frac{7}{x}$

$-4x = 9(7)$
$-4x = 63$

$x = -15.75$

7. $\frac{10}{x} = \frac{52}{13}$

$52x = 10(13)$
$52x = 130$

$x = 2.5$

Write a proportion for each situation below. Then, solve.

1. The ratio of teachers to students at the middle school is 1: 12. If there are 1080 students at the school, how many teachers are there?

$$\frac{1\ teacher}{12\ students} = \frac{x}{1080\ students}$$

$12x = 1(1080)$
$12x = 1080$
$x = 90$ teachers

2. Four gallons of gasoline weigh 25 pounds. How much does 15 gallons of gasoline weigh?

$$\frac{4\ gal}{25\ lbs} = \frac{15\ gal}{x}$$

$4x = 25(15)$
$4x = 375$
$x = 93.75$ lbs

3. On a certain day, the exchange rate was 100 U.S. dollars for 74 euros. How many U.S. dollars were 481 euros that day?

$$\frac{100\ U.S.dollars}{74\ euros} = \frac{x}{481\ euros}$$

$74x = 100(481)$
$74x = 48100$
$x = 650$ U.S. dollars

4. The photo shop can develop 1024 photos in 8 hours. At this rate, how long will it take to develop 160 photos?

$$\frac{1024\ photos}{8\ hours} = \frac{160\ photos}{x}$$

$1024x = 8(160)$
$1024x = 1280$
$x = 1.25$ hrs
OR 1hr 15 min