

11/20/2014 Good afternoon!

Check your homework answers:
HW Page 24

1.	5	
2.	28	
3.	$2\frac{4}{7}$	$= \frac{18}{7}$
4.	60	
5.	$4\frac{1}{2}$	$= \frac{9}{2}$
6.	52	
7.	$2\frac{2}{5}$	$= \frac{12}{5}$
8.	15	

Practice Test Answers

2. -2

4. -1

6. 1

8. -2

10. 2

16. $\{4, 14\}$ 18. $\{-11, -10, -9\}$ 20. $\{23, 25, 27, 29\}$

Unit 2 Pr. Test

⑧

$$12 - 12x - 9 = -2x + 23$$

$$3 - 12x = -2x + 23$$

$$3 = 10x + 23$$

$$-20 = 10x$$

$$-2 = x$$

⑧

1st: x 2nd: $x+1$ 3rd: $x+2$

$$3x + 3 = -30$$

$$3x = -33$$

$$x = -11$$

$$\{-11, -10, -9\}$$

(20)

$$\begin{array}{rcl}
 1^{st} & & x \\
 2^{nd} & & x+2 \\
 3^{rd} & & x+4 \\
 4^{th} & & x+6 \\
 \hline
 \end{array}$$

$$4x + 12 = 104$$

$$4x = 92$$

$$x = 23$$

$$\{23, 25, 27, 29\}$$

(16)

$$Sm: x$$

$$Lg: 4x - 2$$

$$5x - 2 = 18$$

$$5x = 20$$

$$x = 4$$

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CAUTION: You may only cross multiply when you see an equals sign in the middle. "When $\frac{\text{fraction}}{\text{fraction}} = \frac{\text{fraction}}{\text{fraction}}$, cross multiply's your action."

1. $\frac{x+4}{5} = \frac{x-2}{7}$ Step 1: cross multiply

$7(x+4) = 5(x-2)$ Step 2: SOLVE

$7x + 28 = 5x - 10$ Step 3: _____

$2x + 28 = -10$ Step 4: _____

$2x = -38$ $x = -19$

✓ Understanding Check

a. $\frac{x+2}{14} = \frac{x}{10}$

$10(x+2) = 14x$

$x = 5$

b. $\frac{3}{w+6} = \frac{5}{w-4}$

$3(w-4) = 5(w+6)$

$w = -21$

c. $\frac{2n+3}{4} = \frac{5n-1}{6}$

$6(2n+3) = 4(5n-1)$

$n = 11/4$

p 32

Investigation: Estimating Fish in a Lake

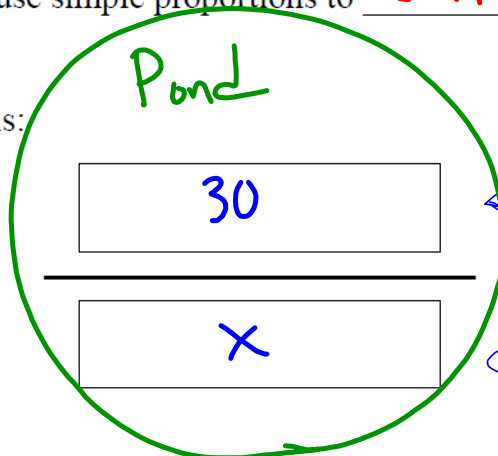
Ponds and lakes can be healthy and thriving, or barren of life. One way to tell if a lake is healthy is to look at the number of fish living in the lake. Since scientists can't count every fish in a lake, they tag, release, and recapture a small ~~population~~ sample of fish, and then use simple proportions to estimate the number of fish living in the lake.

They set up the proportion like this:

tagged fish
in sample

total fish in
sample

=



tagged fish

total fish

Activity:

1. Fill your paper bag 1/5 full of beans (These represent all the fish in your lake).
2. Catch and mark with a marker 30 "fish". Then release them back into the "lake". Let the fish swim around all night (shake the bag).
3. Use your "net" to scoop out a level scoop of "fish". Count how many are marked and how many are not marked. Set up a proportion according to the chart above. Then solve to estimate the number of "fish" in the "lake".
4. Scientific Method requires us to do three samplings of the fish for more accurate results:

Sample #1:

$$\frac{2}{161} = \frac{30}{x}$$

$$x = 2415$$

Sample #2:

$$\frac{2}{177} = \frac{30}{x}$$

$$x = 2655$$

Sample #3:

$$\frac{3}{220} = \frac{30}{x}$$

$$x = 2200$$

Based on your findings, how many fish do you think are in the lake?

3209

average

2670 actual fish

✓ Understanding Check

1. A scientist goes to a new lake. In the lake he tags 200 fish. When he then takes a first sampling he only catches 100 fish, but 5 of them are tagged. Just based on the first sample, how many fish could be in the lake?

$$\begin{array}{ccc} & \text{Sample} & \text{Lake} \\ \frac{\text{Tag}}{\text{Total}} : & \frac{5}{100} = & \frac{200}{x} \\ & 5x = 20000 & \\ & x = 4000 \text{ fish} & \end{array}$$

33

Ratio and Proportion Word Problems

Example:

A box of cereal weighing 350 grams contains 21 grams of fat. Find the number of grams of fat in the recommended serving size of 50 grams.

$$\begin{array}{l} \text{weight} \rightarrow \\ \text{fat} \rightarrow \end{array} \quad \frac{350}{21} = \frac{50}{x}$$

Step 1: Set up the first fraction: $\frac{\text{weight}}{\text{fat}}$

Step 2: Make the fraction match

Step 3: SOLVE

Step 4: Answer the question.

$$350x = 1050$$

$$x = 3$$

There are 3 g of fat in a serving size of 50 g.

Understanding Check

- a. You are riding your bicycle. It takes you 28 minutes to go 8 miles. If you continue traveling at the same rate, how long will it take you to go 15 miles?

$$\frac{\text{dist}}{\text{time}} : \quad \frac{8}{28} = \frac{15}{x}$$

$$8x = 420$$

$$x = 52.5$$

It'll take 52.5 min to go 15 miles.

- b. You are reading a book for your English class. It takes you 75 minutes to read 45 pages. At that rate, how long will it take you to read the entire 195 page book?

✓ Understanding Check

- a. You are riding your bicycle. It takes you 28 minutes to go 8 miles. If you continue traveling at the same rate, how long will it take you to go 15 miles?

- b. You are reading a book for your English class. It takes you 75 minutes to read 45 pages. At that rate, how long will it take you to read the entire 195 page book?

$$325$$

- c. A broken pipe was leaking water at a rate of 2 gallons every 5 minutes. It took 23 minutes to stop the leak. How many gallons were wasted?

$$x = 9.2$$

- d. Derek scored a total of 34 points in his first 4 basketball games. If he continues at that rate, how many points will he score for the season of 18 games?

$$x = 153$$

- e. It has been found that 1 out every 30 drivers fails to wear a seatbelt. If there are 1950 cars on the freeway, how many drivers are not wearing a seatbelt?

$$\frac{\text{no belt}}{\text{\# drivers}} : \frac{1}{30} = \frac{x}{1950}$$

$$x = 65$$

- f. A tree casts a shadow 30 feet long. If a man 6 feet tall casts a shadow 5 feet long, at the same time of day, how tall is the tree?

$$\frac{\text{height}}{\text{shadow length}} : \frac{6}{5} = \frac{x}{30}$$

$$x = 36$$

Homework:

HW page 24 odd } due Monday
HW page 25 odd }
&

**STUDY FOR QUIZ
on Friday!!!!**

Study notes p18-29
and HW Pages 12-23