

Homework 9

For this homework and in the future, you can write fractions as either “2 *fifths*” or “ $\frac{2}{5}$ ”.

1. IMAP Video 12 (3:25)

Notice the directions below (you only watch part of the video at a time). It should make the video clip more interesting and give you a chance to reflect. Do not worry about getting a correct answer on the first two questions; they are more to get you thinking.

a. BEFORE Watching the Video

How might a fifth-grade child who can correctly draw rectangular diagrams of $\frac{1}{7}$

and $\frac{2}{7}$ incorrectly conclude that $\frac{1}{7}$ is greater than $\frac{2}{7}$?

b. Watch the FIRST Part

Watch the video until around 1:19 (the end of the first little part with Jacky solving the problems. Stop when you get to the classroom full of teachers. Did you understand why Jacky’s reasoning made sense *from her point of view*? If so, explain it in your own words.

c. Watch the REST

Watch the rest of the video and explain Jacky’s misconception in your own words.

2. Textbook Section 2.1 (p. 45)

3, 4, 5, 8, 14 (skip the “unambiguous question” part)

3. Textbook Section 6.2 (p. 232)

7

See next page!!!

4. Writing and Solving Fraction Problems

Example Problem

Our hiking group has 4 gallons of water. We drink 2 fifths a gallon of water an hour. How many hours will it take us to drink all our water? (Answer: 10 hours)

In this problem we can see:

Product (total amount): 4 gallons

Group Size (amount per group): 2 fifths gallon per hour

of Groups: 10 hours

This is # of Groups Unknown because the amount of hours was unknown.

We can write this with an equation as:

$$4 \text{ gallons} \div 2 \text{ fifths gallon per hour} = \text{hours}$$

We can rewrite this as a Group Size Unknown:

Our hiking group has 4 gallons of water. We hiked for 10 hours and drank our water at a steady rate. How many gallons did we drink each hour?

Then we would have the following equation

$$4 \text{ gallons} \div 10 \text{ hours} = 2 \text{ fifths gallon per hour}$$

We can also rewrite it as a Product Unknown problem:

Our hiking group hiked for 10 hours. We drank 2 fifths a gallon of water each hour. How many gallons of water did we drink?

Then we would have the following equation:

$$10 \text{ hours} \times 2 \text{ fifths gallon per hour} = 4 \text{ gallons}$$

Now You Try

For each of the ideas below you should:

- Create your own numbers
 - The two numbers in the problem should be fractions
 - Try making one or both of the numbers less than one from time to time
 - It can be especially challenging to make the # of Groups less than one
- Write a problem with the units given (the unknown is the one not listed)
- Solve the problem by drawing a picture
- Rewrite the problem as both other kinds of Equal Groups problems as in the example
- Show how you could use a problem

- **Water and Buckets**

- Product: gallons of water
- # of Groups: buckets

- **At the Gym**

- Product: miles ran
- Group Size: miles per lap

- **Paving the Road**

- Product: miles (to be paved)
- # of Groups: days (spent paving)

- **Baking**

- Product: vegan oatmeal bars
- Group Size: cups of flour per bar