

1/17/2020

Lesson 9: Dividing Rational Numbers

Let's divide signed numbers.

Substitution = plugging in a # for a variable to help solve the problem

9.1: Tell Me Your Sign

Consider the equation: $-27x = -35$

Without computing:

1. Is the solution to this equation positive or negative?
2. Are either of these two numbers solutions to the equation?

$$\frac{35}{27}$$

$$-\frac{35}{27}$$

9.2: Multiplication and Division

1. Find the missing values in the equations

a. $-3 \cdot 4 = ? - 12$

b. $-3 \cdot ? = 12$

$$\frac{12}{-3} = (-4)$$

c. $3 \cdot ? = 12$

$$\frac{12}{3} = (4)$$

d. $? \cdot -4 = 12$

$$\frac{12}{-4} = (-3)$$

e. $? \cdot 4 = -12$

$$\frac{-12}{4} = (-3)$$

When missing numbers, do opposite operation to find missing #.

negative signs cancel each other out to become a positive

↓ positive

$$+ 9 \cdot + 4 = 36$$

2. Rewrite the unknown factor problems as division problems.

3. Complete the sentences. Be prepared to explain your reasoning.

- a. The sign of a positive number divided by a positive number is always: *positive*

Ex: $6 \div 3 = 2$

- b. The sign of a positive number divided by a negative number is always: *Negative*

Ex: $6 \div -3 = -2$



- c. The sign of a negative number divided by a positive number is always: *negative*

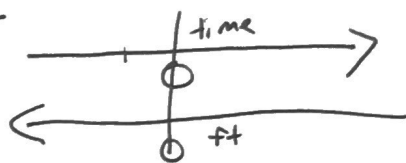
Ex: $-6 \div 3 = -2$

- d. The sign of a negative number divided by a negative number is always: *positive*

Ex: $-6 \div -3 = 2$

4. Han and Clare walk towards each other at a constant rate, meet up, and then continue past each other in opposite directions. We will call the position where they meet up 0 feet and the time when they meet up 0 seconds.

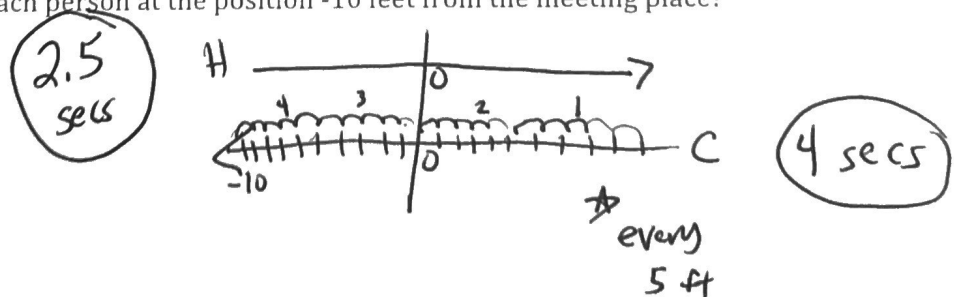
- Han's velocity is 4 feet per second. $\frac{4 \text{ ft}}{\text{sec}}$ 
- Clare's velocity is -5 feet per second. 



- a. Where is each person 10 seconds before they meet up?

Hans $4(-10) = -40$ (Before = -) $\frac{-5 \text{ ft}}{\text{sec}}$
 Claire $-50 \times -10 = 50 \text{ ft}$

- b. When is each person at the position -10 feet from the meeting place?



2.5 secs
 4 secs
 every 5 ft