

MS 319

7th Grade

New York Cares, Saturday Tutoring Program

MS 319 Mathematics Department

11/8/2014

Name: _____ Class: _____

Lesson 4: Operations with Rational Numbers**OBJECTIVES: SWBA to**

Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers.

INTRODUCTION + Vocabulary:

Rational numbers are a group of numbers that include anything that can be expressed as a ratio of 2 numbers. These include some decimals, percents, and most fractions. In real life rational numbers are literally everywhere. Gradients or slope of hills, prices of items, and sales with percents off, deposits and withdraws in saving and checking accounts, the list goes on and on.

MINI-LESSON (I DO):**Problem 1:**

Graham's monthly bank statement showed the following deposits and withdrawals:

-\$25.20, \$52.75, -\$22.04, -\$8.50, \$94.11

If Graham's balance in the account was \$47.86 at the beginning of the month, what was the account balance at the end of the month?

Show your work.

Solution:

A deposit is money added to my savings. A deposit is equivalent to an addition.

A withdraw is money taken out of savings. A withdraw is equivalent to a subtraction.

A balance is what is left in an account. This amount could be positive or negative (for instance, if I withdraw more money than what I have in a checking account. Some banks allow people to do this! But they pay a penalty though!)

Let's add up all the deposits (positive numbers) together: $\$52.75 + \$94.11 = \$146.86$.

Now we add up all the withdrawals (negative numbers) together: $-\$25.20 + (-\$22.04) + (-\$8.50) = -\55.74

Next, we compare the deposits and withdrawals, to determine the net amount of money: $\$146.86 + (-\$55.74) = \$91.12$. This is a positive amount of money. That is money that can be spent.

Finally add \$91.12 to \$47.86 to get the ending balance of **\$138.98**.

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Guided Practice: (We do):**Problem 2:**

Juan and Mary are playing the integer card game. The cards in their hands are shown below:

**Part A:**

What are the scores in each of their hands?

Solution:**Juan's Hand:**

$$3 + 4 + 9 = 17$$

$$17 + (-12) = 4$$

Juan's score" +4**Mary's Hand**

$$3 + 1 + 2 = 6$$

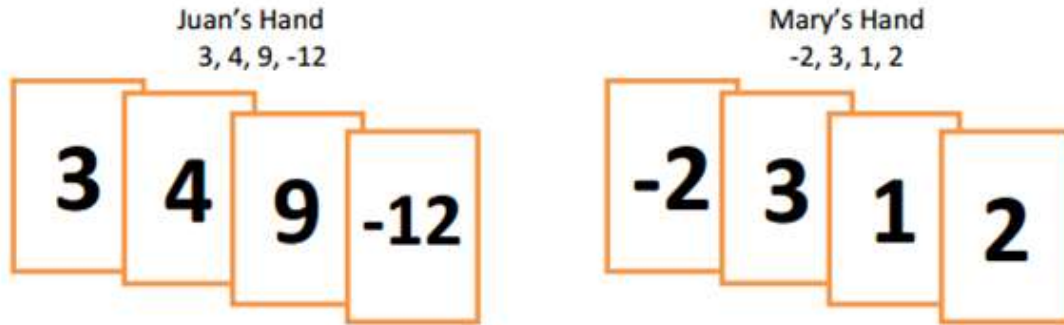
$$-2 + 6 = 4$$

Mary's score: +4

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Problem 3:

Juan and Mary are playing the integer card game. The cards in their hands are shown below:

**Part B.**

Lydia says that if Juan and Mary both take away their 3s, Juan's score will be higher than Mary's.

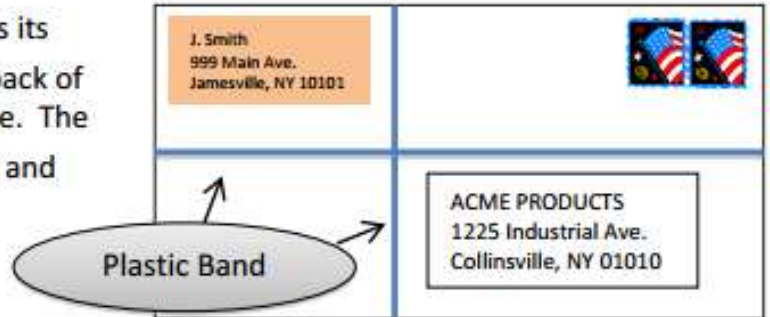
Marcus argues and says that Juan and Mary's scores will be equal. Are either of them right?

Explain.

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Problem 4:

The length of a rectangular envelope is $2\frac{1}{2}$ times its width. A plastic band surrounds the front and back of the envelope to secure it as shown in the picture. The plastic band is $39\frac{3}{8}$ inches long. Find the length and width of the envelope.

**Show your work:**

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Problem 5:

Travis received a letter from his bank saying that his checking account balance fell below zero. His account transaction log is shown below.

CHECK NO.	DATE	DESCRIPTION OF TRANSACTION	PAYMENT	DEPOSIT	BALANCE	
---	10/17	Beginning Balance	---	---	\$367.50	
1125	10/18	CBC Audio (Headphones)	\$62.00		-62.00	
					\$305.50	Line 1
1126	10/22	NY Sport (Basketball Shoes)	\$87.00		-87.00	
					\$218.50	Line 2
Debit	10/25	Gary's Country Market	\$38.50		-38.50	
					\$180.00	Line 3
1127	10/25	Iggy's Skate Shop (Skateboard)	\$188.00		-188.00	
					\$8.00	Line 4
	10/25	Cash Deposit (Birthday Money)		\$20.00	+20.00	
					\$28.00	Line 5
Debit	10/30	McDonuts	\$5.95		-5.95	
					\$22.05	Line 6

Part A:

On which line did Travis make a mathematical error? Explain Travis' mistake.

Part B:

The bank charged Travis a \$20 fee because his balance dropped below 0. He knows that he currently has an outstanding charge for \$7.85 that he has not recorded yet. How much money will Travis have to deposit into his account so that the outstanding charge does not create another bank fee?

Explain.

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Problem 6:

In one year, Melinda's parents spend \$2,640.90 on cable and internet service. If they spend the same amount each month, what is the resulting monthly change in the family's income?

Show your work.

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Problem 7:**Part A:**

Eric and four of his friends are taking a trip across the New York State Thruway. They decide to split the cost of tolls equally. If the total cost of tolls is \$8, how much will each person have to pay?

Show your work:**Part B:**

Just before leaving on the trip, two of Eric's friends have a family emergency and cannot go. What is each person's share of the \$8 tolls now?

Show your work:

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Problem 8:**Spiral Review:**

Ms. Donaldson earns \$18.80 per hour for the first 40 hours she works in a week. She earns $1\frac{1}{2}$ times that amount per hour for each hour beyond 40 hours in a week. Last week Ms. Donaldson worked 45.5 hours. How much money did she earn?

Show your work.

Answer \$ _____

A health insurance payment of \$34.55 was **deducted** from Ms. Donaldson's earnings for the week. After the insurance deduction, payroll taxes equal to 28% of the balance were **deducted**. What was the amount that Ms. Donaldson received?

Show your work.

Answer \$ _____

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Final Summary

In a U-Shape:

1. Re-state the objective to assess if students learn it
2. Elicit from students what they have learned and what they want to learn more about.
3. Tie what they learn to the lesson, and upcoming lessons (Next Saturday, they will learn about proportion, a comparison of two ratios!)