Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Accelerated Math Midterm Review

Vocabulary to Study

Integer- any whole number, positive or negative

Rational Number- a number that can be written as a fraction

Additive Inverse- what you add to a number to get zero

Absolute Value- a number’s distance from zero

Opposites- numbers that are the same distance from zero but in opposite directions

Commutative Property- says that you can add or multiply numbers in any order

Distributive Property- says that multiplying a number by a group of numbers is the same as multiplying separately

Equation- a statement that the values of two expressions are equal

Inequality- a statement that the values of two expressions are not equal

Solution set- the set of all values that makes a statement true

Algebraic expression- a mathematical phrase containing numbers, variables and operations

Ratio- shows the relative sizes of two or more values

Unit rate- the ratio of two measurements where one of the terms is 1

Proportion- says that two ratios (fractions) are equal

Constant of proportionality- the constant in a proportional relationship

Scale Drawing- a drawing that shows a real object with accurate sizes reduced or enlarged by a certain amount

Enlargement- when the scale drawing is larger than the original

Reduction- when the scale drawing is smaller than the original

Practice Problems

Spencer’s monthly bank statement for the month of January was mailed to his house. It showed the following deposits and withdrawals:

$$-\$18.45, \$27.66, -\$7.42, \$75.99$$

Spencer’s balance in the account was $35.07 at the beginning of the month. What was the account balance at the end of the month?

Yesterday, Cameron’s bank account balance was -$32.15. Today the balance is $17.98. What was the ***change*** in Cameron’s account?

Owen bought a stapler for $\$4.50$ and 4 notebooks for $d$ dollars each. He spent a total of $7.50. *Write and solve an equation* to determine the cost of each notebook.

Kaili spent $150 at a thrift shop. She bought 5 rings for $15 each and spent the rest on 25 equally priced bracelets. *Write and solve an equation* to determine the cost of each bracelet.

Evaluate the expression $\frac{1}{2}x-12.35$ if $x=18$ Evaluate the expression $\frac{2}{3}x+7$ if $x=9$

Factor the following expressions:

1. $32x+36y$ B) $27a+9b$

Simplify the following expressions:

$8x-17+4x-11$ $-4\left(2x+1\right)+5x$

$\left(-3.7+18.2\right)-(13.4+8.5)$ $4-3(4x-3)$

Solve for x:

$3x+7=35$ $-2x-8=16$

$25-3\left(x-1\right)+5x=46$ $2\left(x+4\right)-x=9$

$-6x-20=-2x+4(1-3x)$ $-8x+4\left(1+5x\right)=-6x-14$

Does the data shown in the table represent a proportional relationship? How do you know?

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The students in the service club are mixing paint to make a mural. The table shows the different parts of paint that the students mix together.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | A | B | C | D | E |
| Parts of Blue Paint | 1 | 2 | 3 | 4 | 5 |
| Parts of Yellow Paint | 4 | 8 | 12 | 16 | 20 |

1. Does the table represent a proportional relationship?
2. If so, what is the constant of proportionality?
3. Write an equation that represents this relationship.
4. Tell what the constant of proportionality means *in this situation*:

Does the data shown in the graph represent a proportional relationship? How do you know?



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 What is the constant of proportionality? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Alaina has a recipe that needs $\frac{4}{5}$ teaspoon of sugar for every 4 cups of cream. If Alaina increases the amount of cream to 7 cups, how many teaspoons of sugar are needed?

Mrs. Debye gave her class 10 *minutes* to read. Julia read $4\frac{1}{2}$ pages in that time. At was rate, in pages per *hour*, did Julia read?