Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Algebra 1

Date: \_\_\_\_\_\_\_\_\_\_\_Pd: \_\_\_\_\_\_\_\_\_\_\_ MP1 Exam

1. Which expression represents “5 less than the product of 7 and *x*”?

a. 7(*x* – 5) c. 7 + *x* – 5 e. 5 – 7 + x

b. 7x -5 d. 5 – 7x

1. Twelve decreased by the quantity five times a number y.

a. 5y – 12 c. -12 – 5y e. 12 – 5y

b. 12y – 5 d . 12 + 5y

1. An expression is shown: x + (4x + 3)

What is the coefficient of the simplified expression?

1. 1 c. 5 e. 5x2
2. 4 d. 5x
3. Simplify :
4. 22x + 38 c. 22x – 38 e. 2x – 38
5. 2x + 22 d. 22x + 22
6. A triangle has side lengths of: x, x + 11, and 3x + 5

What is the perimeter?

1. 5x + 16 c. 3x2 + 38x + 55
2. 4x + 16 d. 3x3 + 38x2 + 55x

6. Evaluate: 3x + 2y + (4z + xy – yz) when x = -2, y = 3 and z = -4

1. -80 b. -20 c. -10 d. 10 e. 20

7. Simplify: 3x – 4(2x + 10)

1. -5x – 40 b. -11x – 12 c. 9x² + 18x d. 5x – 12 e. x – 12
2. What equation do you get when you solve the equation ***qx + rx = s*** for ***x***?
3.  b.  c.  d. 

**Short Constructed Response** – Write the correct answer for each question. No partial credit will be given

1. Mike drove 50 mph for 3.5 hours. How far did he drive?
2. 
3. Brett was given the problem: “Evaluate 2*x*2 + 5 when *x* = -3.”

Brett wrote that the answer was -13. Was Brett correct?

Explain your answer.

1. 
2. 

**Extended Constructed Response** - Solve the problem, showing all work. Partial credit may be given.

1. A hairdresser is deciding where to open her own studio. If the hairdresser chooses Location A, she will pay $1200 per month in rent and will charge $45 per haircut. If she chooses Location B, she will pay $1800 per month in rent and will charge $60 per haircut. How many haircuts would she have to give in one month to make the same profit at either location?
2. Describe and correct the error in finding the solution to 2x = 6x

1. The perimeters of the triangles below are equal. Find the side lengths of each triangle.



AB \_\_\_\_\_\_\_\_\_\_\_\_\_ PQ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

BC \_\_\_\_\_\_\_\_\_\_\_\_\_ QR \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

AC \_\_\_\_\_\_\_\_\_\_\_\_\_ PR \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Give an example of a System of Linear Equation with one solution.

* Looking at a graph: what would I see?

1. Give an example of a System of Linear Equations with no solution.

* Looking at a graph: what would I see?

1. Give an example of a System of Linear Equations with Infinitely many solutions.

* Looking at a graph: what would I see?

1. A student stated that the sum of two real numbers is always an integer. Is the student correct? Explain why or why not and provide an example to support your answer.



New Jersey Student Learning Standards:

**MA.9-12.CCSS.Math.Content.HSA-SSE.A.1a** - Interpret parts of an expression, such as terms, factors, and coefficients.

**MA.9-12.CCSS.Math.Content.HSN-RN.B.3** - [Standard] - Explain why the sum or product of two rational numbers is rational; that the sum of a rational number and an irrational number is irrational; and that the product of a nonzero rational number and an irrational number is irrational.

**MA.9-12.CCSS.Math.Content.HSA-CED.A.1** - [Standard] - Create equations and inequalities in one variable and use them to solve problems.

**MA.9-12.CCSS.Math.Content.HSA-REI.D.10** - [Standard] - Understand that the graph of an equation in two variables is the set of all its solutions plotted in the coordinate plane, often forming a curve (which could be a line).

**MA.9-12.CCSS.Math.Content.HSA-REI.B.3** - [Standard] - Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

**MA.9-12.CCSS.Math.Content.HSA-REI.A.1** - [Standard] - Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

**MA.9-12.CCSS.Math.Content.HSA-CED.A.4** - [Standard] - Rearrange formulas to highlight a quantity of interest, using the same reasoning as in solving equations.

**MA.9-12.CCSS.Math.Content.HSA-CED.A.3** - [Standard] - Represent constraints by equations or inequalities, and by systems of equations and/or inequalities, and interpret solutions as viable or non-viable options in a modeling context.