Name:_____ **TA:**_____

Foundations of Math 10 LG 13 Ver B

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Expectation 1: solve systems of linear equations using the substitution method.

1. Solve this linear system of equations using the method of substitution. (2 marks)

$2x - 7y = 6$
$x = 4y - 1$

$2(4y-1) - 7y = 6$

$8y - 2 - 7y = 6$

$y - 2 = 6$

$y = 8$

$x = 4y - 1$

$x = 4(8) - 1$

$x = 32 - 1$

$x = 31$

$(31, 8)$ IS THE SOLUTION

2. Solve this linear system of equations using the method of substitution. (2 marks)

(1) $5x - y = 7$
(2) $3x + 5y = -7$

(1) $5x - y = 7$

$-y = -5x + 7$

$y = 5x - 7$

$3x + 5(5x - 7) = -7$

$3x + 25x - 35 = -7$

$28x = 28$

$x = 1$

$y = 5x - 7$

So $y = 5(1) - 7$

$y = -2$

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$(1, -2)$ IS THE SOLUTION

Expectation 2: solve systems of linear equations using the elimination method.

3. Solve this system of equations using the elimination (addition/subtraction) method: (2 marks)

$2x - 3y = 1$
$4x + 3y = 11$

$6x = 12$

$x = 2$

$2(2) - 3y = 1$

$4 - 3y = 1$

$-3y = -3$

$y = 1$

$(2, 1)$ IS THE SOLUTION

4. Solve this system of equations using the elimination (addition/subtraction) method. (2 marks)

$5x - 7y = -2$ $\times 4$
$4x + 2y = 5$ $\times 5$

$20x - 28y = -8$
$-\ 20x + 10y = 25$

$-38y = -33$

$y = \frac{33}{38}$

$5x - 7y = -2$ $\times 2$
$4x + 2y = 5$ $\times 7$

$10x - 14y = -4$
$+\ 28x + 14y = 35$

$38x = 31$

$x = \frac{31}{38}$

$\left(\frac{31}{38}, \frac{33}{38}\right)$ IS THE SOLUTION.

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Expectation 3: choose a strategy to solve a problem that involves a linear system.

5. The sum of two numbers is 66 and their difference is 18. What are the numbers? (2 marks)

LET x & y BE THE 2 NUMBERS.

$$\begin{array}{r} x+y=66 \\ -\ x-y=18 \\ \hline 2y=48 \end{array}$$

$$y=24$$

$$\begin{array}{r} x+y=66 \\ +\ x-y=18 \\ \hline 2x=84 \end{array}$$

$$x=42$$

THE 2 #'S ARE 42 & 24.

* YOU COULD ALSO SOLVE USING SUBSTITUTION.

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6. The school band bought tickets for a concert. They paid $290 for 6 tickets in Section A and 10 tickets in Section B. When the concert was repeated the next week, they paid $220 for 4 tickets in Section A and 8 tickets in Section B.

   Write and solve a system of equations to determine the cost of tickets in Section A and Section B. (2 marks)

LET A = COST OF SECTION A TICKETS
LET B = COST OF SECTION B TICKETS

① $6A + 10B = 290$
② $4A + 8B = 220$

① $4A = -8B + 220$
$A = -2B + 55$

$6(-2B + 55) + 10B = 290$
$-12B + 330 + 10B = 290$
$-2B = -40$
$B = 20$

$A = -2B + 55$
$A = -2(20) + 55$
$A = -40 + 55$
$A = 15$

SECTION A COSTS $15
SECTION B COSTS $20

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