

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

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

Mrs. Roubos

8A Period \_\_\_\_\_

Extra Review for Systems of Equations Test

1) Solve the following systems of equations algebraically and check.

$$6x + 2y = 14$$

$$3x + 2y = 8$$

2) Solve the following systems of equations algebraically and check.

$$y = -x - 7$$

$$2x + 3y = 21$$

3) The sum of two numbers is 66. The larger number is 4 more than the smaller number. Find both numbers.

4) Two heads of lettuce and three pounds of tomatoes cost \$2.85. Three heads of lettuce and two pounds of tomatoes cost \$2.90. Find the cost of one head of lettuce and the cost of one pound of tomatoes.

5) For performance, a school collected \$1000 from the sale of tickets. Tickets sold for \$3 in advance and \$5 at the door. If 300 tickets were sold, how many of each type of ticket was sold?

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Extra Review for Systems of Equations Test

1) Solve the following systems of equations algebraically and check.

$$\begin{array}{r} 3(6x + 2y = 14) \rightarrow 18x + 6y = 42 \\ -6(3x + 2y = 8) \rightarrow -18x - 12y = -48 \\ \hline + \\ \hline -6y = -6 \\ \hline -6 \quad -6 \\ \hline \boxed{y = 11} \end{array}$$

$$\begin{array}{r} 6x + 2y = 14 \\ 6x + 2(11) = 14 \\ \hline 6x + 22 = 14 \\ \hline -2 \quad -2 \\ \hline 6x = 12 \\ \hline \frac{6x}{6} = \frac{12}{6} \\ \hline \boxed{x = 2} \end{array}$$

$(2, 1)$

Check #1  
 $(2, 1)$   
 $x \ y$   
 $6x + 2y = 14$   
 $6(2) + 2(1) = 14$   
 $12 + 2 = 14$   
 $14 = 14$   
 $\checkmark$

Check #2  
 $(2, 1)$   
 $x \ y$   
 $3x + 2y = 8$   
 $3(2) + 2(1) = 8$   
 $6 + 2 = 8$   
 $8 = 8$   
 $\checkmark$

\* Elimination method

2) Solve the following systems of equations algebraically and check.

$$\begin{array}{r} y = -x - 7 \\ 2x + 3y = 21 \\ \hline 2x + 3y = 21 \\ 2x + 3(-x - 7) = 21 \\ 2x - 3x - 21 = 21 \\ -x - 21 = 21 \\ \hline +21 \quad +21 \\ \hline -x = 42 \\ \hline -1 \quad -1 \\ \hline \boxed{x = -42} \end{array}$$

$$\begin{array}{r} y = -x - 7 \\ y = -(-42) - 7 \\ y = 42 - 7 \\ \hline \boxed{y = 35} \end{array}$$

$(-42, 35)$

Check #1  
 $(-42, 35)$   
 $x \ y$   
 $y = -x - 7$   
 $35 = -(-42) - 7$   
 $35 = 42 - 7$   
 $35 = 35$   
 $\checkmark$

Check #2  
 $(-42, 35)$   
 $x \ y$   
 $2x + 3y = 21$   
 $2(-42) + 3(35) = 21$   
 $-84 + 105 = 21$   
 $21 = 21$   
 $\checkmark$

\* substitution method

larger = x b/c it came 1<sup>st</sup> in the sentence  
 $x = 4 + y$

3) The sum of two numbers is 66. The larger number is 4 more than the smaller number. Find both numbers.

L	E	S	C
let $x =$ the larger # $y =$ the smaller #	$x + y = 66$ <del><math>x = 4 + y</math></del> $x + y = 66$ $4 + y + y = 66$ $4 + 2y = 66$ $\frac{-4}{2} \quad \frac{-4}{2}$ $\frac{2y}{2} = \frac{62}{2}$ $y = 31$	$x + y = 66$ $x + 31 = 66$ $\frac{-31 \quad -31}{x = 35}$	The larger # is 35 and the smaller # is 31. $35 + 31 = 66 \checkmark$ $31 + 4 = 35 \checkmark$ must use + b/c it says more than

4) Two heads of lettuce and three pounds of tomatoes cost \$2.85. Three heads of lettuce and two pounds of tomatoes cost \$2.90. Find the cost of one head of lettuce and the cost of one pound of tomatoes.

L	E	S	C
let $x =$ the cost of 1 head of lettuce $y =$ the cost of 1 pound of tomatoes	$2x + 3y = 2.85 \rightarrow 6x + 9y = 8.55$ <del><math>2(3x + 2y = 2.90) \rightarrow 6x + 4y = 5.80</math></del> $\frac{+}{+}$ $\frac{5y}{5} = \frac{2.75}{5}$ $y = 0.55$ $2x + 3(0.55) = 2.85$ $2x + 1.65 = 2.85$ $\frac{-1.65}{2} \quad \frac{-1.65}{2}$ $\frac{2x}{2} = \frac{1.20}{2}$ $x = 0.60$	The cost of 1 head of lettuce is \$0.60 and the cost of 1 pound of tomatoes is \$0.55	$2(0.60) = 1.20$ $3(0.55) = 1.65$ $\frac{+}{2.85} \checkmark$ $3(0.60) = 1.80$ $2(0.55) = 1.10$ $\frac{+}{2.90} \checkmark$

5) For performance, a school collected \$1000 from the sale of tickets. Tickets sold for \$3 in advance and \$5 at the door. If 300 tickets were sold, how many of each type of ticket was sold?

L	E	S	C
let $x =$ the # of tickets sold in advance $y =$ the # of tickets sold at the door	$3x + 5y = 1000 \rightarrow 3x + 5y = 1000$ $x + y = 300 \rightarrow -3x - 3y = -900$ $\frac{2y}{2} = \frac{100}{2}$ $y = 50$ $x + y = 300$ $x + 50 = 300$ $\frac{-50 \quad -50}{x = 250}$	there were 250 tickets sold in advance and 50 tickets sold at the door	$250(3) = 750$ $50(5) = 250$ $\frac{+}{1000} \checkmark$ $250 + 50 = 300 \checkmark$