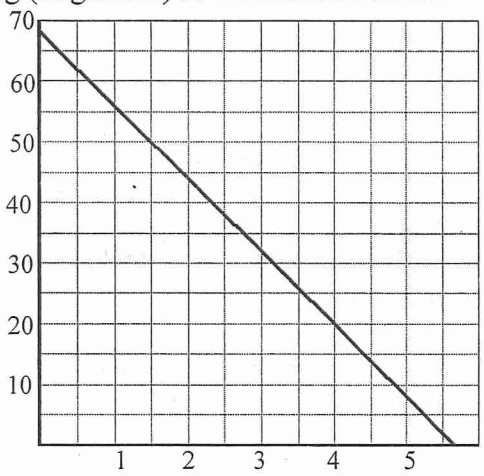
Test 2b Name Key

Calculator Part: You may use your calculator on this part of the test. Be sure to show all necessary work for full credit.

3 1. Given $\begin{cases} y = 9.8x + 21.2 \\ y = 7.7 - 3.7x \end{cases}$, solve the system using a table. Be sure to show your table.

X	Y_1	Y_2
-1	11.4	11.4
0	21.2	7.7

2. The graph shows the amount of water, W, remaining (in gallons) in a southern Florida household t days after a hurricane.



4 A. Find the slope of the line and interpret its meaning in the context of the problem.

$m = -12$ use 12 gallons per day

4 B. Find the horizontal intercept and interpret its meaning in the context of the problem.

$t = 5.67$

after 5.67 days, there is no water

3 C. Find an equation that expresses the amount of water remaining in terms of days after the hurricane.

$W - 20 = -12(t - 4)$

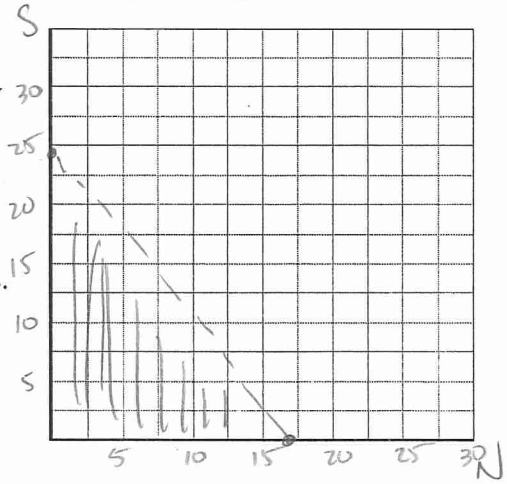
$W = -12t + 68$

3. Dr. Rhodes wants to buy Chick-fil-A sandwiches at \$3.25 each and 12 piece nuggets at \$4.69 each.

4 A. Find an inequality that relates the number of sandwiches, S, and the number of nuggets, N, that Dr. Rhodes can buy if she wants to spend less than \$80.

$3.25S + 4.69N < 80$

3 B. Graph this equation. Be sure to label the scale on the axes.



4. Dr. Phelps sells cotton candy at her cousin's swim meet for $4.50 per bag. She also sells peanuts at the meet for $3.50 per bag. One day she sold 160 bags and collected 645 dollars. How many of each item did she sell?

A. Set up a system of equations.

4

$4.50C + 3.50P = 645$

$C + P = 160$

B. Solve the system using any method discussed in class. Be sure to show your work.

3

$C = 160 - P$

$4.5(160 - P) + 3.50P = 645$

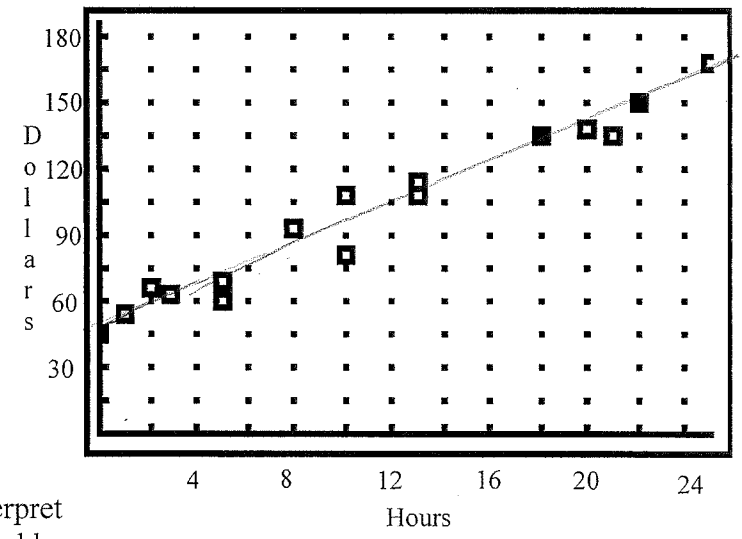
$720 - 4.5P + 3.5P = 645$

$-P = -75$

$P = 75$

$C = 85$

5. The scatterplot shows the rate per hour based on the number of years of experience a worker has on the job.



A) Use a straight-edge to draw a line of best fit.

2

B) Use your graph to find the rate per hour at two different years of experience.

3

(6, 75) (12, 105)

C) Find the slope of your line and interpret its meaning in the context of the problem.

3

$\frac{30}{6} = 5$

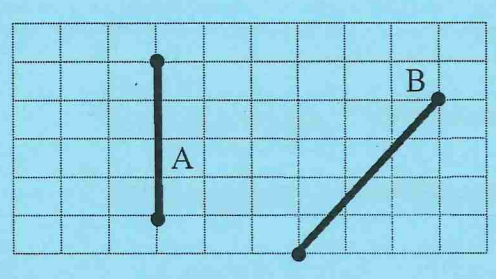
17 Test 2b –Spring 2017 Name Key

No Calculator Part: You may not use your calculator on this part of the test. Show all necessary work for full credit.

1. Estimate the slope of each of the line segments shown.

2 A. undefined

2 B. 4/3



3 2. Write the equation of a line with slope of 4 and the point (0, 3). $y = 4x + 3$

3 3. Write the equation of a horizontal line through the point (9, 4). $y = 4$

4 4. Write the equation of a line with the two points (3, 0) and (-8, 2).

$-11 < \begin{matrix} 3 & 0 \\ -8 & 2 \end{matrix} > 2$

$y - 2 = \frac{-2}{11}(x + 8)$

$y = \frac{-2}{11}(x - 3)$

$y = \frac{-2}{11} + \frac{6}{11}$

4 5. Write the equation of a line perpendicular to $y = \frac{3}{2}x + 5$ through the point (2, 4).

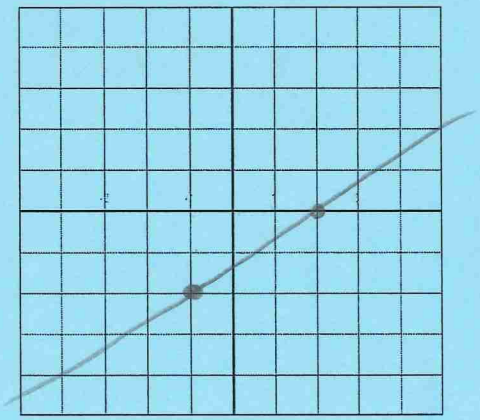
$m = -2/3$

$y - 4 = \frac{-2}{3}(x - 2)$

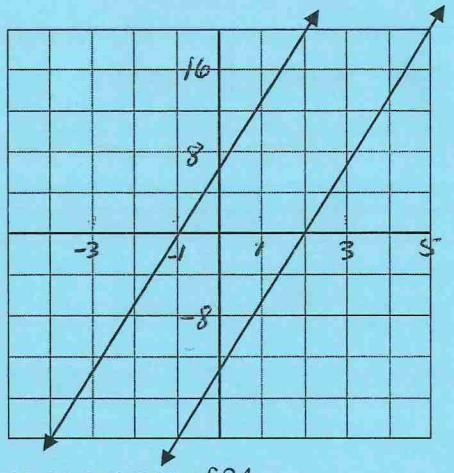
3 6. A. Sketch a line with $m = \frac{2}{3}$ and the point (-1, -2).

3 B. Write an equation of the line.

$y + 2 = \frac{2}{3}(x + 1)$



7. **Approximate** the solution to the system of equations **using the graph** given. **Show on the graph** how you found the solution. The scale on the x-axis is 1 units and the scale on the y-axis is 4 units.



2 Solution: No Solution

1 Is the system consistent or inconsistent? inconsistent

1 Is the system dependent or independent? independent

8. Mary and Richard fill their 600-gallon heating fuel oil tank. They use an average of 24 gallons of heating fuel oil per week.

4 A. What is the slope in this problem? What does it represent in the context of the problem?

$m = 24$, use 24 gallons per week

3 B. Write an equation that expresses the amount of oil, A, in the tank in terms of the number of weeks, w, since they filled the tank.

$A = 600 - 24w$

4 9. Given the table as shown, find the slope (include the units). $4.19/lb$

Pounds, P	Cost in dollars, C
2	9.38
5	21.95
10	42.90

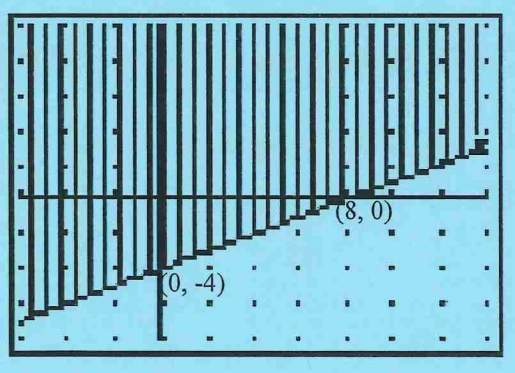
3 < → 12.57

$\frac{12.57}{3}$

$3\overline{)12.57}$ → 4.19

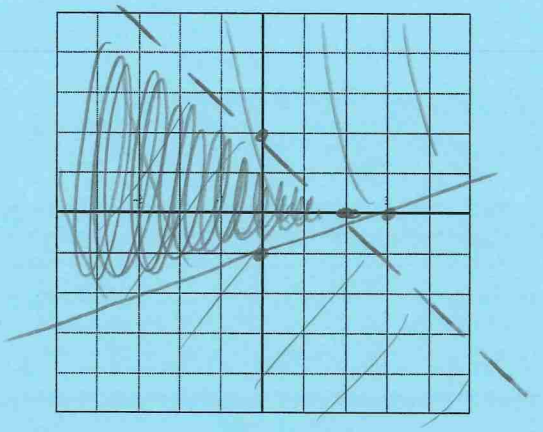
4 10. Write the inequality that matches the graph shown.

$y \geq \frac{1}{2}x - 4$



11. Graph the system of inequalities. $\begin{cases} y \geq \frac{1}{3}x - 1 \\ x + y < 2 \end{cases}$

6



12. Given the system $\begin{cases} y = 2x + 5 \\ -2x + y = 4 \end{cases}$, how many solutions does the system have? None

4

$y = 2x + 4$

Is the system consistent or inconsistent? inconsistent Dependent or independent? independent

13. Solve by elimination. Show your work. $\begin{cases} u + v = -3 \\ 2u - 3v = 19 \end{cases}$

4

$(u + v = -3)\,3$

$3u + 3v = -9$

$5u = 10$

$u = 2$

$2 + v = -3$

$v = -5$

$(2, -5)$

14. Solve the system using substitution. $\begin{cases} y = 2x - 3 \\ 6x - 2y = 4 \end{cases}$

4

$6x - 2(2x - 3) = 4$

$6x - 4x + 6 = 4$

$2x = -2$

$x = -1$

$y = -2 - 3 = -5$

$(-1, -5)$

15. Solve the system. $\begin{cases} x - 2y + 3z = 9 \\ x + y - z = -5 \\ 2x - 3y + z = 6 \end{cases}$

6

$x = -1$

$y = -2$

$z = 2$

36

Test 2 Name Key

Calculator Part: You may use your calculator on this part of the test. Be sure to show all necessary work for full credit.

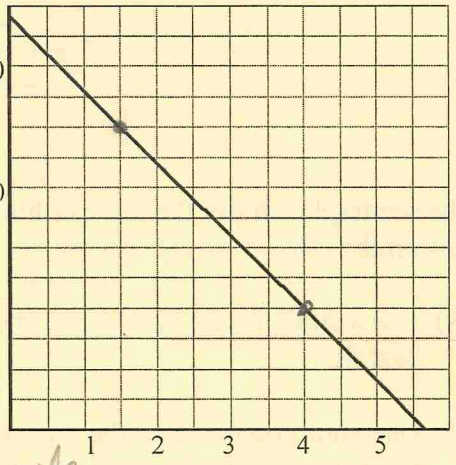
1. Given $\begin{cases} y = 5.8x - 9.8 \\ y = 0.7 - 4.7x \end{cases}$, solve the system using a table. Be sure to show your table.

3

X	Y_1	Y_2
0	-9.8	.7
1	-4	-4
2	1.8	-8.7

(1, -4)

2. The graph shows the amount of water, W, remaining (in gallons) in a southern Florida household t days after a hurricane.



A. Find the slope of the line and interpret its meaning in the context of the problem.

4

$\frac{30}{-2.5} = -12$ Use 12 gallons per day

B. Find the horizontal intercept and interpret its meaning in the context of the problem.

4

$t = \frac{68}{12} = 5.67$

After 5.67 days, there is no water.

C. Find an equation that expresses the amount of water remaining in terms of days after the hurricane.

3

$W - 20 = -12(t - 4)$

$W - 20 = -12t + 48$

$W = -12t + 68$

3. Bob wants to buy Chick-fil-A sandwiches at \$3.05 each and 12 piece nuggets at \$5.95 each.

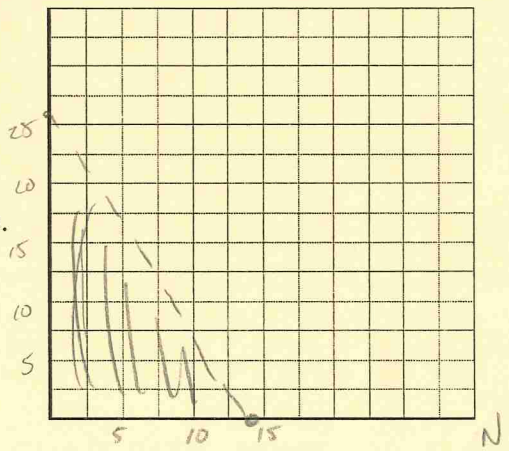
A. Find an inequality that relates the number of sandwiches, S, and the number of nuggets, N, that Bob can buy if he wants to spend less than \$80.

4

$3.05S + 5.95N < 80$

B. Graph this equation. Be sure to label the scale on the axes.

3



4. Joel sells cotton candy at the Magic games for $4 per bag. He also sells peanuts at the games for $2.50 per bag. One day he sold 160 bags and collected 460 dollars. How many of each item did he sell?

A. Set up a system of equations.

4 $4C + 2.5P = 460$
$C + P = 160$

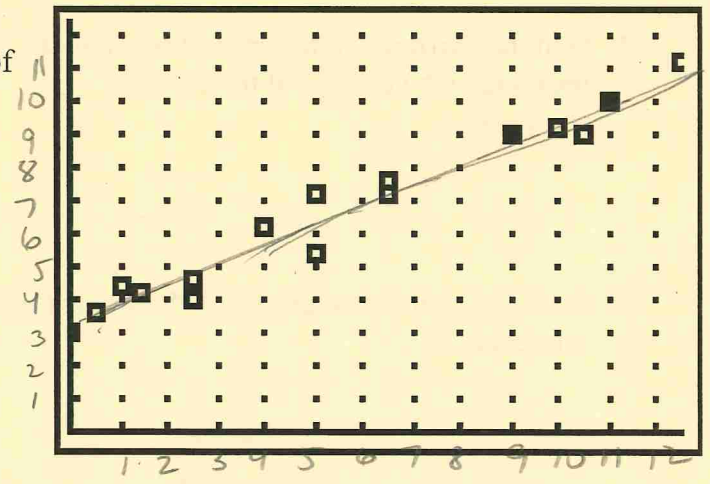
$C = 160 - P$

B. Solve the system using any method discussed in class. Be sure to show your work.

3 $4(160-P) + 2.5P = 460$
$640 - 4P + 2.5P = 460$
$\frac{-1.5P}{-1.5} = \frac{-180}{-1.5}$
$P = 120$ $C = 40$

120 peanuts
40 CC

5. The scatterplot shows the rate per hour based on the number of years of experience a worker has on the job.



2 A) Use a straight-edge to draw a line of best fit.

B) Use your graph to find the rate per
3 hour at two different years of experience.

(6,7)
(8,8)

C) Find the slope of your line and interpret its meaning in the context of the problem.

3 $m = \frac{1}{2}$ Every 2 years, rate goes up $1 per hour.

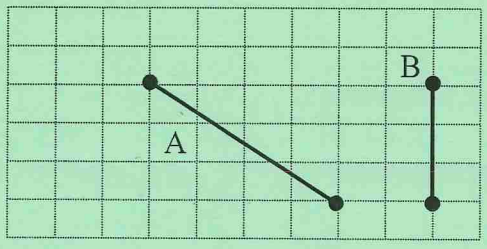
Test 2 –Spring 2017 Name Key

No Calculator Part: You may not use your calculator on this part of the test. Show all necessary work for full credit.

1. Estimate the slope of each of the line segments shown.

2 A. $-3/4$

2 B. undefined



3 2. Write the equation of a line with slope of 7 and the point (0, -5). $y = 7x - 5$

3 3. Write the equation of a vertical line through the point (9, 4). $x = 9$

4 4. Write the equation of a line with the two points (4, 0) and (8, - 2).

$4 < \begin{matrix} 4 \\ 8 \end{matrix} \begin{matrix} 0 \\ -2 \end{matrix} > -2$

$y + 2 = -\frac{1}{2}(x - 8)$

$y = -\frac{1}{2}(x - 4)$

$y = -\frac{1}{2}x + 2$

4 5. Write the equation of a line perpendicular to $y = \frac{1}{2}x + 1$ through the point (2, 7).

$m = -2$

$y - 7 = -2(x - 2)$

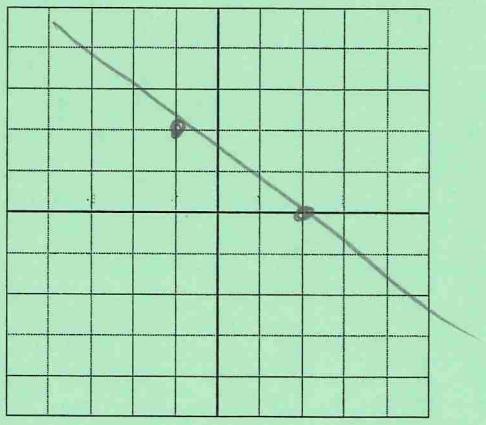
$y = -2x + 11$

6. A. Sketch a line with $m = -\frac{2}{3}$ and the point (-1, 2).

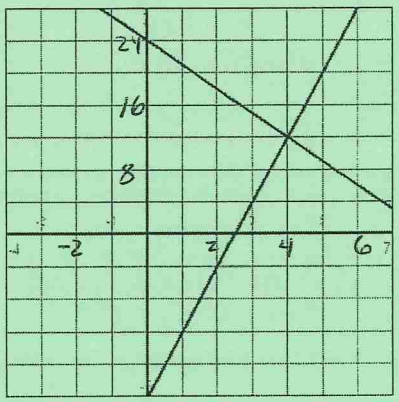
3

3 B. Write an equation of the line.

$y - 2 = -2/3(x + 1)$



7. **Approximate** the solution to the system of equations **using the graph** given. **Show on the graph** how you found the solution. The scale on the x-axis is 1 units and the scale on the y-axis is 4 units.



2 Solution: (4, 12)

1 Is the system consistent or inconsistent? Consistent

1 Is the system dependent or independent? independent

8. Mary and Richard fill their 400-gallon heating fuel oil tank. They use an average of 21 gallons of heating fuel oil per week.

4 A. What is the slope in this problem? What does it represent in the context of the problem?

$m = -21$, they use 21 gallons per week

3 B. Write an equation that expresses the amount of oil, A, in the tank in terms of the number of weeks, w, since they filled the tank.

$A = 400 - 21w$

4 9. Given the table as shown, find the slope (include the units). $\frac{\$8.25}{3 \text{ lbs}} = \$2.75/\text{lb}$.

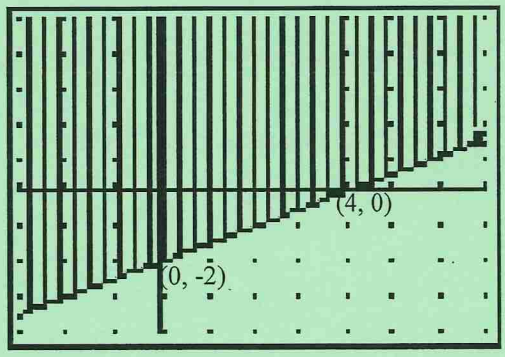
Pounds, P	Cost in dollars, C
2	7.50
5	15.75
10	29.50

3 < > 8.25

2.75
3 | 8.25
6
22
21
15

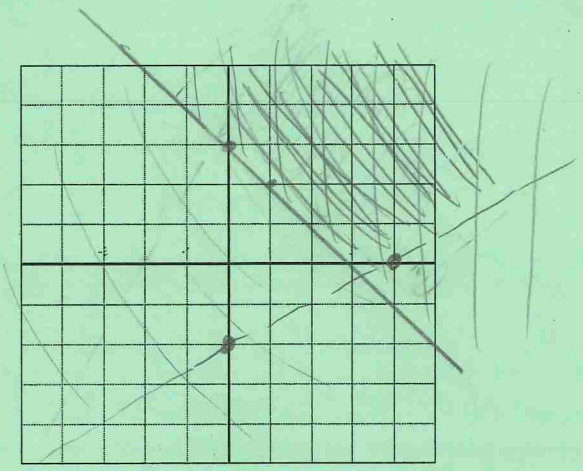
4 10. Write the inequality that matches the graph shown.

$y \geq \frac{1}{2}x - 2$



10

11. Graph the system of inequalities. $\begin{cases} y \geq -x+3 \\ x-2y<4 \end{cases}$



12. Given the system $\begin{cases} y=2x+5 \\ -2x+y=5 \end{cases}$, how many solutions does the system have? infinite

4

$y=2x+5$

Is the system consistent or inconsistent? consistent Dependent or independent? dependent

13. Solve by elimination. Show your work. $\begin{cases} 5u+v=8 \\ u+2v=-2 \end{cases}$ $\cdot -2$

4

$-10u-2v=-16$

$u+2v=-2$

$-9u=-18$

$u=+2$

$5(2)+v=8$

$+10+v=8$

$v=-2$

$(2,-2)$

14. Solve the system using substitution. $\begin{cases} y=2x-5 \\ 6x-2y=4 \end{cases}$

4

$6x-2(2x-5)=4$

$6x-4x+10=4$

$2x+10=4$

$2x=-6$

$x=-3$

$y=2(-3)-5=-11$

$(-3,-11)$

15. Solve the system. ① ② ③ $\begin{cases} x-2y+3z=-3 \\ 2x+y+z=9 \\ x-y+z=1 \end{cases}$

6

$x=4$

$y=2$

$z=-1$