Algebra 1/2

Semester 1

Name _____

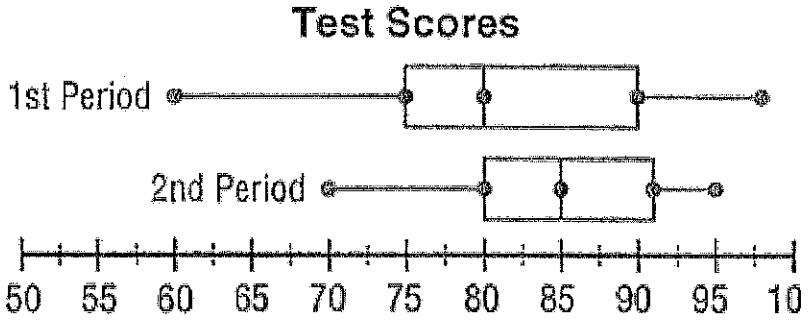
Period _____ Date _____

Final Retention Exam Review

Units of Study:		Worksheets:	Quizzes & Tests:
Unit 1	1-Variable Statistics		Quiz 1 & Test 1
Unit 2	Solving Equations		Quiz 2 & Test 2
Unit 3	Slope-Intercept Form		Quiz 3 & Test 3
Unit 4	Standard Form & Point-Slope Form		Quiz 4 & Test 4
Unit 5	Two-Variable Statistics & Line of Best Fit		--

Unit 1 Learning Targets: 1-Variable Statistics	No Evidence (1)	Working Towards (2)	Close to Proficient (2.5)	Proficient (3)
• I can interpret dot plots, box plots and histograms. • I can identify and contextualize appropriate measures of center and spread for a given set or shape of data (comparing 2 or more data sets)				

For problems 1-3, use the parallel box plots at right →



1. Which class period had a **lower** median? Explain.

1st P median = 80
2nd P median = 85

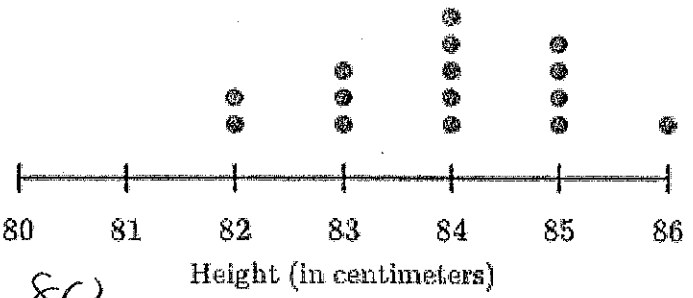
1st P is lower.

2. Which class period was **more consistent** with their scoring? Explain.

2nd Period is less spread out = more consistent.

3. Which class period typically scored **higher**? Explain.

2nd period has a higher center.



For **problems 4-5**, use the dot plot at right:

4. Describe the shape of the dot plot.

Mostly Symmetric

5. How could you increase the standard deviation by moving one point? Explain.

Move a dot from 84 to 80 (spread out the dots more)

STOP and check your answers for Unit 1. Give yourself a score, and then fix any errors.

Unit 2 Learning Targets: Solving Equations • I can solve 1-variable linear equations • I can rewrite expressions using algebraic properties	**No Evidence (1)**	**Working Towards (2)**	**Close to Proficient (2.5)**	**Proficient (3)**

For problems 6-10, solve for the variable. Check your solution.

6. $4(x + 6) + 2x = 24$

$4x + 24 + 2x = 24$

$6x + 24 = 24$

$-24 \quad -24$

$\frac{6x}{6} = \frac{0}{6}$

$x = 0$

Check:

$4(0+6)+2(0) \stackrel{?}{=} 24$

$4(6) + 0 = 24$

✓

7. $\frac{x}{2} - 5 = -3$

$+5 \quad +5$

$2\left(\frac{x}{2} = 2\right) \cdot 2$

$x = 4$

Check:

$\frac{4}{2} - 5 \stackrel{?}{=} -3$

$2 - 5 = -3$

✓

8. $4x - 7 = -2x - 1$

$+2x \quad +2x$

$6x - 7 = -1$

$+7 \quad +7$

$\frac{6x}{6} = \frac{6}{6}$

$x = 1$

Check:

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

$4 - 7 = -2 - 1$

$-3 = -3$

✓

9. $\frac{x}{8} \times \frac{9}{12}$

$12 \cdot x = 8 \cdot 9$

$\frac{12x}{12} = \frac{72}{12}$

$x = 6$

$\frac{6}{8} \stackrel{?}{=} \frac{9}{12}$

$.75 = .75$

✓

10. $4(2x + 3) = 8x - 5$

$8x + 12 = 8x - 5$

$-8x \quad -8x$

$12 = -5$

False.

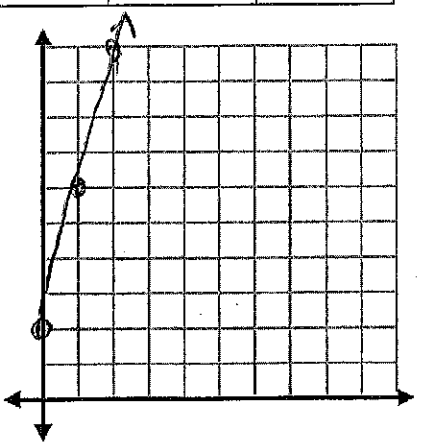
No solution

STOP and check your answers for Unit 2. Give yourself a score, and then fix any errors.

Unit 3 Learning Targets: Slope-Intercept Form • I can write or represent a linear function using a table, graph, or other situation • I can solve and evaluate linear functions • I can identify which situations can be modeled with a linear relationship in slope-intercept form	**No Evidence (1)**	**Working Towards (2)**	**Close to Proficient (2.5)**	**Proficient (3)**

11. Bob the puppy was born and weighed 2 pounds. Each month he gains 4 pounds. **Write an equation in slope-intercept form (y=mx+b) to represent the situation, and then graph it.**

Equation: $y = 4x + 2$



a. Use your equation to calculate how much he will weigh in 15 months.

$y = 4(15) + 2$

$y = 60 + 2 = 62.$

b. Use your equation to calculate how many months it will take for him to weigh 150 pounds.

$150 = 4x + 2$

$-2 \quad -2$

$\frac{148}{4} = \frac{4x}{4}$

$37 = x$

12. Calculate the slope...

a. ...of the line between the points (3,4) and (8, 8)

$m = \frac{8-4}{8-3} = \frac{4}{5}$

Slope: $\frac{4}{5}$

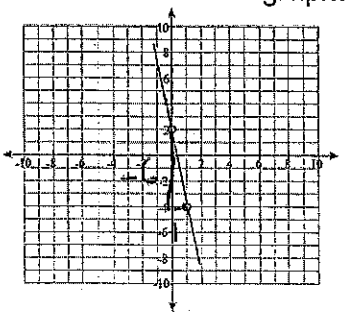
b. ...of the line in this table:

x	y
5	8
6	8
7	8
8	8

$\frac{8-8}{6-5} = \frac{0}{1}$

Slope: 0

c. ...of the line on this graph:



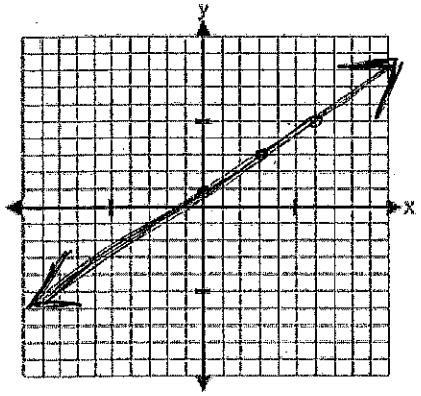
Slope: $\frac{-6}{1} = -6$

13. Identify the slope and y-intercept and then graph the line.

a. $y = \frac{2}{3}x + 1$

slope (m) = $\frac{2}{3}$

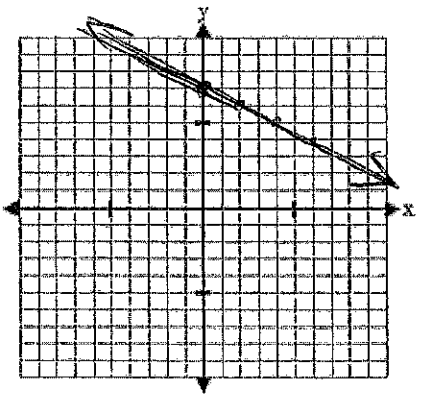
y-int (b) = 1



b. $y = -\frac{1}{2}x + 7$

slope (m) = $-\frac{1}{2}$

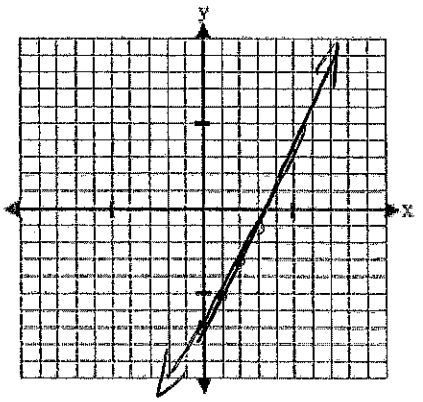
y-int (b) = 7



c. $y = 2x - 7$

slope (m) = 2

y-int (b) = -7



STOP and check your answers for Unit 3. Give yourself a score, and then fix any errors.

Unit 4 Learning Targets: Standard & Point-Slope Form • I can model a linear relationship with standard OR point-slope form equations. • I can change a linear equation from standard and/or point-slope form to slope-intercept form. • I can link the form of a linear equation to particular contexts. • I can represent a linear equation using function notation.	No Evidence (1)	Working Towards (2)	Close to Proficient (2.5)	Proficient (3)

14. Decide which equation should be written in point-slope form, and which equation should be written in standard form, and explain how you know. Then, write the equation.

a. Sharona buys three oranges and 2 apples for total of $4.

Form: Standard

Explanation: 2 things combine to make a total

x = price of orange
y = price of apple

Equation: $3x + 2y = 4$

b. Sharona is trying to gain 3 lbs per month month. After 4 months she weighs 135 lbs.

Form: ~~standard~~ point slope

Explanation: we know change & a certain point

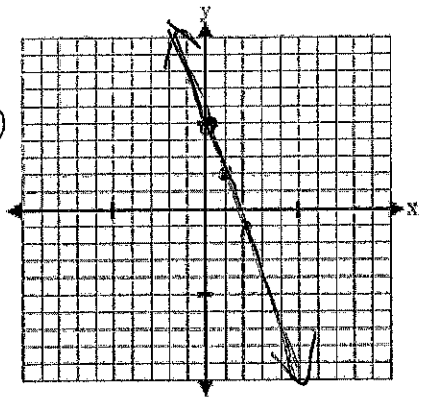
Equation: $y = 3(x-4)+135$

15. The following equations are written in standard form. Change them to slope-intercept form (by solving for y) to graph them.

a. $3x + y = 5$

$-3x \quad -3x$

$y = -3x + 5$

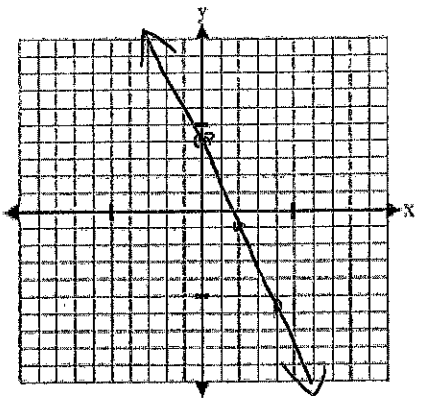


b. $5x + 2y = 8$

$-5x \quad -5x$

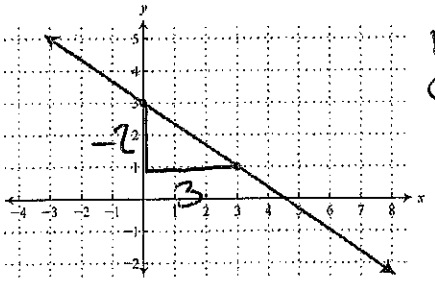
$\frac{2y}{2} = \frac{-5x+8}{2}$

$y = -\frac{5}{2}x + 4$



16. Write an equation in point-slope form:

a.



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

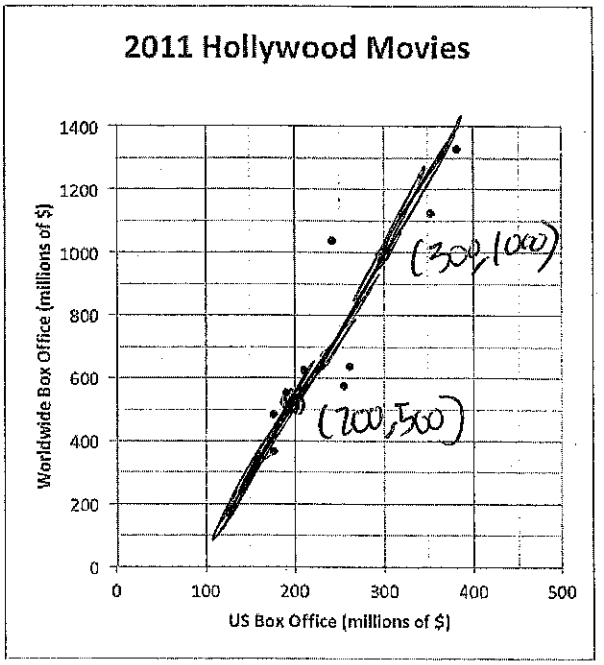
b. ...of a line with a slope of -4 and through the point (5,-7).

$y = -4(x-5)-7$

STOP and check your answers for Unit 4. Give yourself a score, and then fix any errors.

Unit 5 Learning Targets: 2-Variable Statistics & Line of Best Fit • I can define and represent two quantitative variables on a scatter plot and describe how the variables are related. • I can sketch and write an equation of best fit	No Evidence (1)	Working Towards (2)	Close to Proficient (2.5)	Proficient (3)

For **problems 17 - 21**, use the following graph:



17. Describe the correlation of the data. Positive.

18. Draw a line of best fit on the graph.

19. Write an equation of the line of best fit.

$$m = \frac{1000-500}{300-200} = \frac{500}{100} = 5$$

$$y = 5(x-200)+500$$

20. Using your equation, if the US Box Office makes $300 million in sales, find how much the Worldwide Box Office makes.

$$y = 5(300-200)+500$$
$$y = 5(100)+500$$
$$y = 500+500$$

$1000 million

21. Using your equation, if the Worldwide Box Office makes $1,300 million, find how much the US Box Office makes.

$$1300 = 5(x-200)+500$$
$$-500 \quad -500$$
$$\frac{800}{5} = \frac{5(x-200)}{5}$$
$$160 = x-200$$
$$+200 \quad +200$$
$$360 = x$$

STOP and check your answers for Unit 5. Give yourself a score, and then fix any errors.