

# Algebra 1/2

# Semester 1

## Final Retention Exam Review

Name \_\_\_\_\_

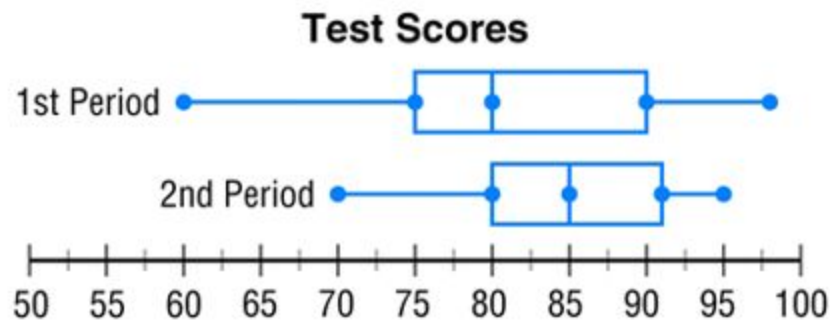
Period \_\_\_\_\_ Date \_\_\_\_\_

Units of Study:	Booklet/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	Work Sample

UNIT 1 Learning Targets: 1-Variable Statistics	Working Towards (2)	Close to Proficient (3)	Close to Proficient (4)	Proficient (5)
<ul style="list-style-type: none"> <li>I can interpret dot plots, box plots and histograms.</li> <li>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)</li> </ul>				

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

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



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

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

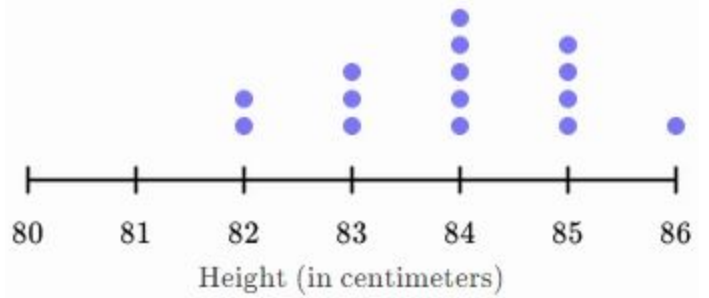
4. Calculate mean, median, mode, range, IQR, and standard deviation for the following data:

5, 7, 9, 4, 5, 7, 6, 4, 9, 12, 3, 1, 5, 5, 5

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

5. Describe the shape of the dot plot.

Height by toddler at Ms. Cabrera's daycare



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



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

**Working Towards**  
(2)

**Close to Proficient**  
(3)

**Close to Proficient**  
(4)

**Proficient**  
(5)

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

7.  $2x + 3 = 67$

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

9.  $4x - 7 = -2x - 1$

10.  $\frac{x}{8} = \frac{9}{12}$

11.  $4(2x + 3) = 8x - 5$

12.  $4(x + 6) + 2x = 24$

13.  $\frac{x+5}{3} = \frac{x}{4}$

14.  $3(x - 4) = 12$



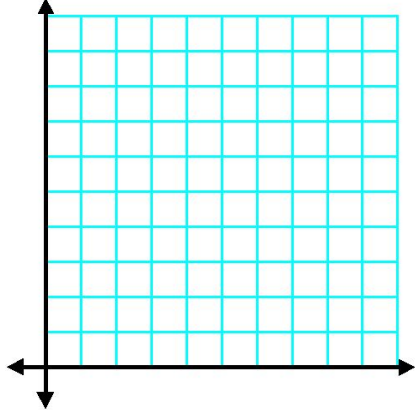
and check your answers for Unit 2. Give yourself a score, and then fix any errors.

<b>UNIT 3 Learning Targets: Slope-Intercept Form</b> <ul style="list-style-type: none"> <li>I can write or represent a linear function using a table, graph, or other situation</li> <li>I can solve and evaluate linear functions</li> <li>I can identify which situations can be modeled with a linear relationship in slope-intercept form</li> </ul>	<b>Working Towards (2)</b>	<b>Close to Proficient (3)</b>	<b>Close to Proficient (4)</b>	<b>Proficient (5)</b>
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**15. 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: \_\_\_\_\_

- a. Use your equation to calculate how much he will weigh in 15 months.
- b. Use your equation to calculate how many months it will take for him to weigh 150 pounds.



**16. Calculate the slope...**

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

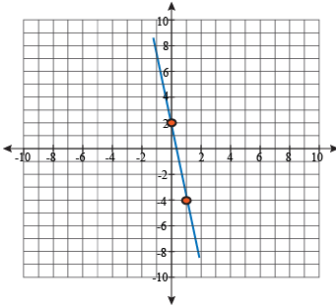
b. ...of the line in this table:

x	y
5	8
6	8
7	8
8	8

Slope: \_\_\_\_\_

Slope: \_\_\_\_\_

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



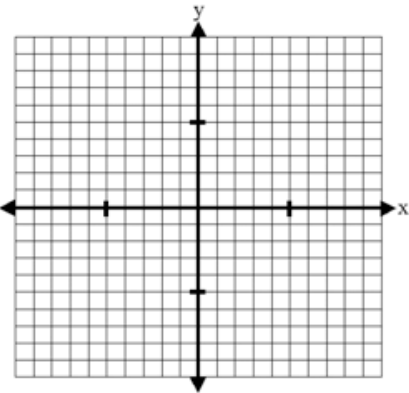
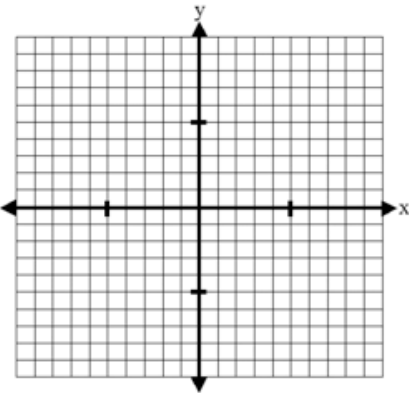
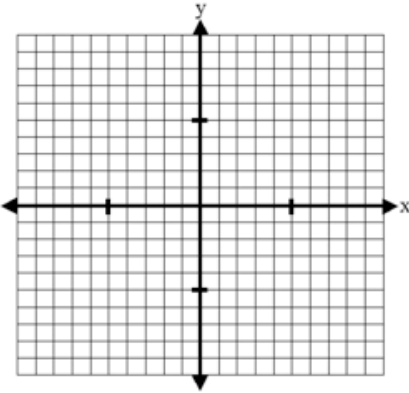
Slope: \_\_\_\_\_

**17. Identify the slope and y-intercept and then graph the line.**

a.  $y = \frac{2}{3}x + 1$   
 slope (m) = \_\_\_\_\_  
 y-int (b) = \_\_\_\_\_

b.  $y = -\frac{1}{2}x + 7$   
 slope (m) = \_\_\_\_\_  
 y-int (b) = \_\_\_\_\_

c.  $y = 2x - 7$   
 slope (m) = \_\_\_\_\_  
 y-int (b) = \_\_\_\_\_





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.

**Working Towards (2)**

**Close to Proficient (3)**

**Close to Proficient (4)**

**Proficient (5)**

**18. 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: \_\_\_\_\_

Explanation:

Equation: \_\_\_\_\_

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

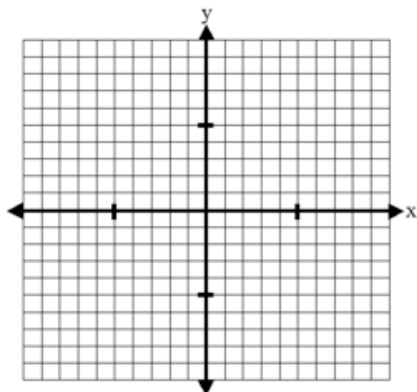
Form: \_\_\_\_\_

Explanation:

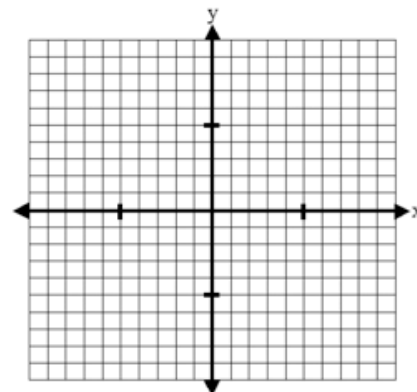
Equation: \_\_\_\_\_

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

**a.**  $3x + y = 5$

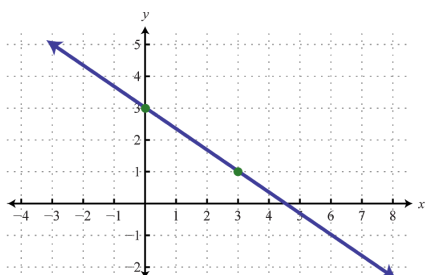


**b.**  $5x + 2y = 8$



**20. Write an equation in point-slope form:**

**a.**



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



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

**Working Towards (2)**

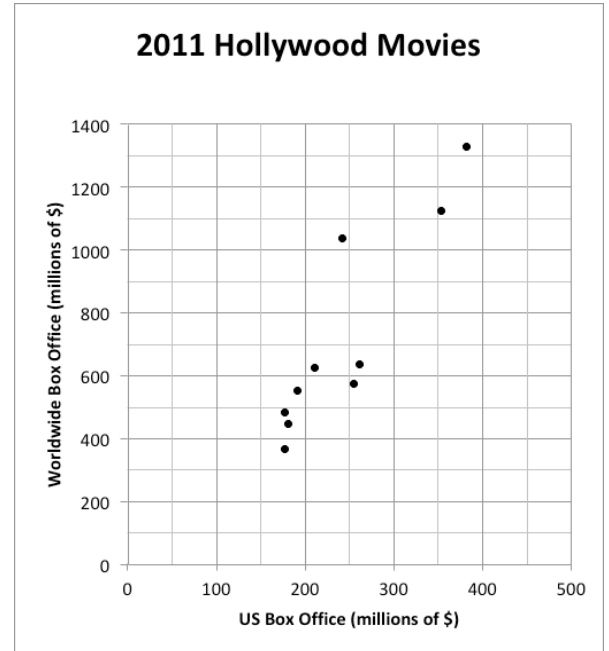
**Close to Proficient (3)**

**Close to Proficient (4)**

**Proficient (5)**

For **problems 21 - 25**, use the following graph:

21. Describe the correlation of the data.
22. Draw a line of best fit on the graph.
23. Write an equation of the line of best fit.



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

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



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

Extra Practice:

Use this data set of amount of YouTube views of 10 randomly selected videos from Portugal the Man (in millions): 3, 3, 4, 4, 5, 7, 9, 11, 14, 17

Measures of Center		
Find the mean. Calculated mean: _____	Find the median. Calculated median: _____	Find the Mode: Calculated mode: _____
Find the range: Calculated range: _____	Find the IQR Calculated IQR: _____	Find the standard deviation Calculated standard deviation: _____

Choose at least 6 problems from below. Solve each equation, then check your solution.

1)  $4 - 3(5n - 6) = 97$

2)  $1 + 3v + 5v = 17$

3)  $7(7 - 4n) = 22 - n$

4)  $5(7n + 4) = 5(8 + 7n)$

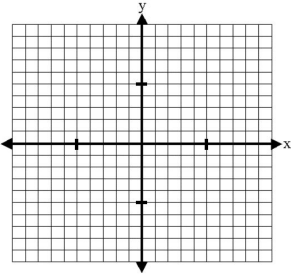
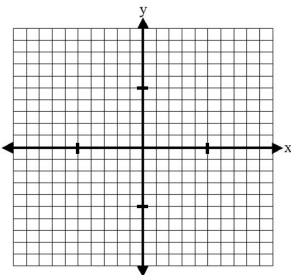
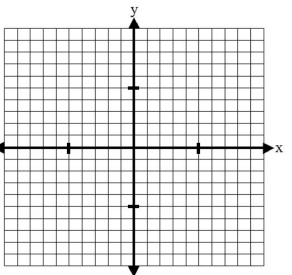
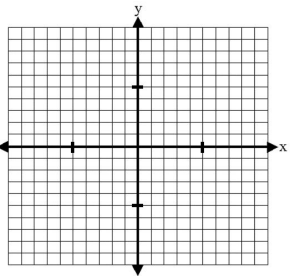
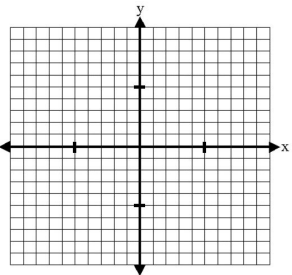
5)  $2(r - 5) = 2r - 2(1 - 4r)$

6)  $8 + \frac{x}{4} = 6$

7)  $\frac{r}{3} + 1 = -5$

8)  $\frac{6 + n}{9} = -1$

5. Graph the equations:

<p>a. <math>y = \frac{4}{3}x - 5</math></p> 	<p>b. <math>y = -3x + 6</math></p> 	<p>c. <math>y = 5</math></p> 
<p>d. <math>2x + 3y = 6</math></p> 	<p>e. <math>y = \frac{2}{3}(x - 2) + 1</math></p> 	<p>f. <math>x = -8</math></p> 