

Howdy!!!!

Mr. Watson

Algebra

What you need:

Pencil

Calculator

CCGPS Coordinate Algebra

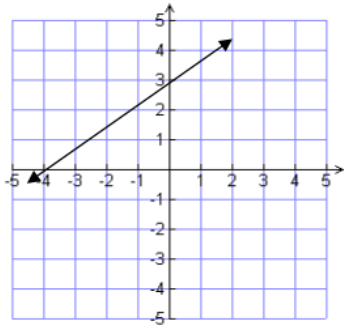
Name: _____

Date: _____ Block: _____

 \mathbb{R}

Characteristics of Functions

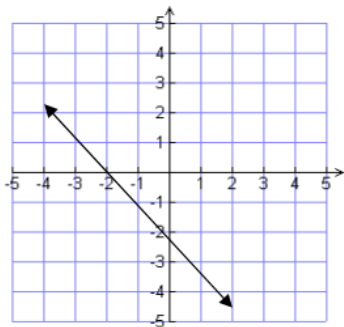
Identify all of the characteristics of each of the following graphs.

Domain: \mathbb{R} Range: \mathbb{R} Interval of Increase: \mathbb{R}

Interval of Decrease: N/A

Maximum: N/A

Minimum: N/A

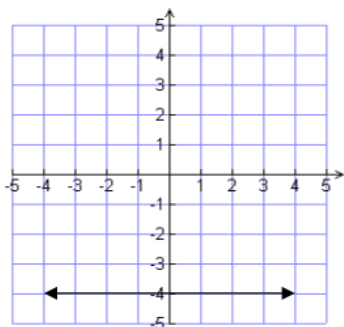
End Behavior: $\text{as } x \rightarrow \infty, f(x) \rightarrow \infty$
 $\text{as } x \rightarrow -\infty, f(x) \rightarrow -\infty$ Zeros: $\leftarrow \text{same} \rightarrow$ X-Intercept: $(-4, 0)$
 $x = -4$ Y-Intercept: $(0, 3)$ Domain: \mathbb{R} Range: \mathbb{R}

Interval of Increase: N/A

Interval of Decrease: \mathbb{R}

Maximum: N/A

Minimum: N/A

End Behavior: $\text{as } x \rightarrow \infty, f(x) \rightarrow -\infty$
 $\text{as } x \rightarrow -\infty, f(x) \rightarrow \infty$ Zeros: $x = -2$ X-Intercept: $(-2, 0)$ Y-Intercept: $(0, -2)$ Domain: \mathbb{R} Range: -4

Interval of Increase: N/A

Interval of Decrease: N/A

Maximum: N/A

Minimum: N/A

End Behavior: $x \rightarrow \infty, f(x) \rightarrow -4$
 $x \rightarrow -\infty, f(x) \rightarrow -4$

Zeros: N/A

X-Intercept: N/A

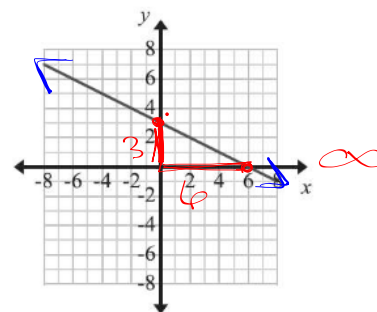
Y-Intercept: $(0, -4)$

Characteristics

Characteristics of Linear Functions Practice Worksheet A

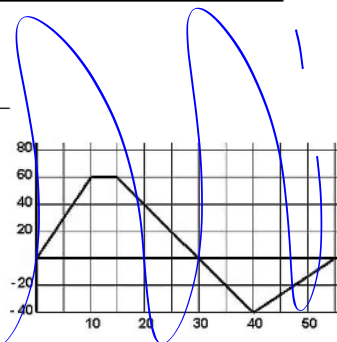
Name _____ Date _____

1. Domain: \mathbb{R} Range: \mathbb{R}
 x-intercept: $(6, 0)$ y-intercept: $(0, 3)$
 Increasing: N/A Decreasing: \mathbb{R}
 Constant: N/A Slope: $-\frac{3}{6}$ or $-\frac{1}{2}$
 End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow -\infty$
 As $x \rightarrow -\infty$, $f(x) \rightarrow \infty$

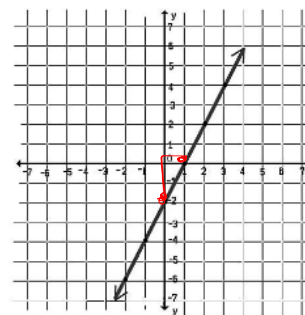


Equation: $y = -\frac{1}{2}x + 3$

2. Domain: _____ Range: _____
 x-intercept: _____ y-intercept: _____
 Increasing: _____ Decreasing: _____
 Constant: _____ Slope: _____
 End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____
 As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

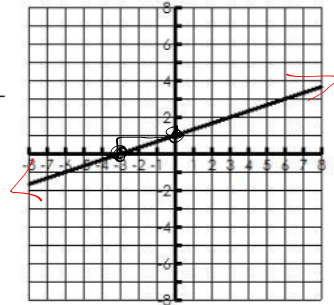


3. Domain: \mathbb{R} Range: \mathbb{R}
 x-intercept: $(1, 0)$ y-intercept: $(0, -2)$
 Increasing: \mathbb{R} Decreasing: N/A
 Constant: N/A Slope: 2 or $\frac{2}{1}$
 End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow \infty$
 As $x \rightarrow -\infty$, $f(x) \rightarrow -\infty$



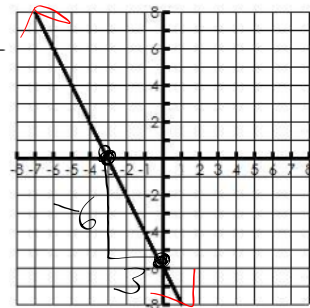
Equation: $y = 2x - 2$

4. Domain: \mathbb{R} Range: \mathbb{R}
 x-intercept: $(-3, 0)$ y-intercept: $(0, 1)$
 Increasing: \mathbb{R} Decreasing: N/A
 Constant: N/A Slope: $\frac{1}{3}$
 End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow \infty$
 As $x \rightarrow -\infty$, $f(x) \rightarrow -\infty$



Equation: $y = \frac{1}{3}x + 1$

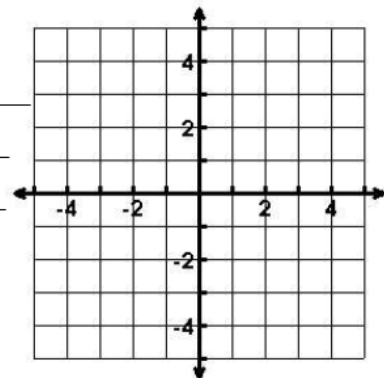
5. Domain: \mathbb{R} Range: \mathbb{R}
 x-intercept: $(-3, 0)$ y-intercept: $(0, -6)$
 Increasing: N/A Decreasing: \mathbb{R}
 Constant: N/A Slope: -2
 End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow -\infty$
 As $x \rightarrow -\infty$, $f(x) \rightarrow \infty$



Equation: $y = -2x - 6$

6. Graph the line and write the characteristics. $f(x) = -\frac{1}{2}x + 4$

Domain: _____ Range: _____
 x-intercept: _____ y-intercept: _____
 Increasing: _____ Decreasing: _____
 Constant: _____ Slope: _____
 End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____
 As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____



Characteristics of Linear Functions Practice Worksheet B

Name _____ Date _____

1. Graph the line and write its characteristics:

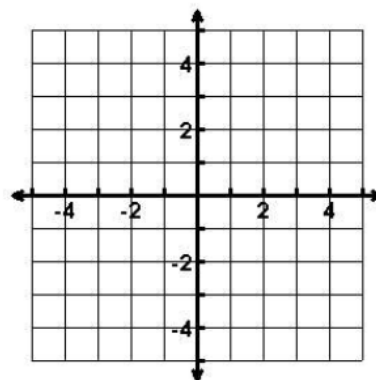
$$f(x) = 2x - 2$$

Domain: _____ Range: _____

x – intercept: _____ y – intercept: _____

Increasing: _____ Decreasing: _____

Constant: _____ Slope: _____

End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

2. Graph the line and write its characteristics:

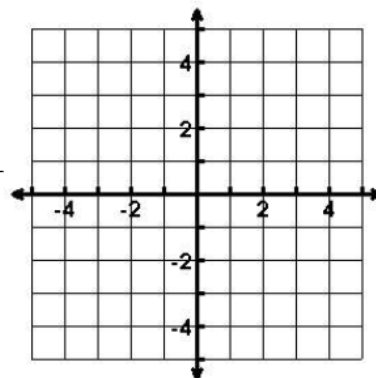
$$f(x) = 3x - 6$$

Domain: _____ Range: _____

x – intercept: _____ y – intercept: _____

Increasing: _____ Decreasing: _____

Constant: _____ Slope: _____

End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

3. Graph the line and write its characteristics:

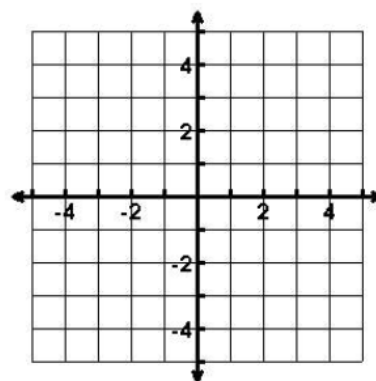
$$f(x) = -x + 2$$

Domain: _____ Range: _____

x – intercept: _____ y – intercept: _____

Increasing: _____ Decreasing: _____

Constant: _____ Slope: _____

End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

4. Graph the line and write its characteristics

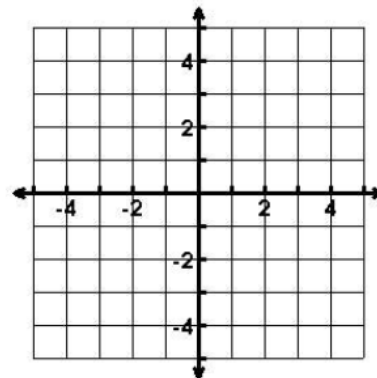
$$f(x) = -\frac{3}{4}x$$

Domain: _____ Range: _____

x – intercept: _____ y – intercept: _____

Increasing: _____ Decreasing: _____

Constant: _____ Slope: _____

End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

5. Using the table of values find the characteristics

x	-3	-2	-1	0	1	2	3
y	-6	-3	0	3	6	9	12

Domain: _____ Range: _____

x – intercept: _____ y – intercept: _____

Increasing: _____ Decreasing: _____

Constant: _____ Slope: _____

End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

Equation: _____

6. Using the table of values find the characteristics.

Domain: _____ Range: _____

x – intercept: _____ y – intercept: _____

Increasing: _____ Decreasing: _____

Constant: _____ Slope: _____

End Behavior: As $x \rightarrow +\infty$, $f(x) \rightarrow$ _____As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____

Equation: _____

X	Y
2	40
4	50
6	60
8	70
10	80

AROC

Slope: $\frac{\text{Rise}}{\text{Run}}$ $\frac{y}{x}$

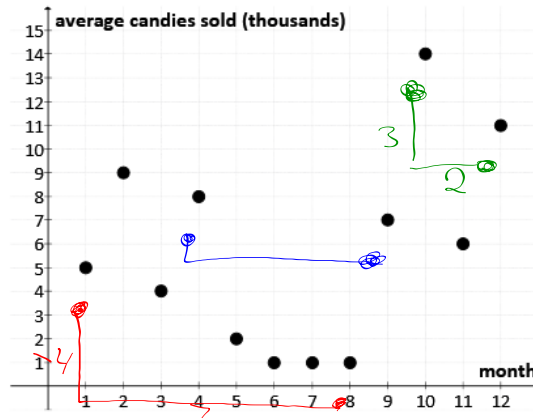
Algebra 1

Average Rates of Change Practice

Name: _____

Date: _____ Block: _____

The graph below plots average monthly candy sales for Kroger grocery stores across the country. The first x value, 1, represents January, 2 represents February, and so on.



1. What is the average rate of change between $x = 1$ and $x = 8$?

$$-\frac{4}{7}$$

2. What is the average rate of change between October and December?

$$-\frac{3}{2}$$

3. What is the average rate of change between April and September?

$$-\frac{1}{5}$$

Below is a table estimating the number of dress code violations each week this school year.

Week of School	1	2	3	4	5	6	7	8	9	10	11	12
# of Dress Code Violations	350	390	340	240	250	200	300	400	150	120	100	130

4. What is the average rate of change over the first four weeks of school?

$$-\frac{110}{3}$$

5. What is the average rate of change over the most recent four weeks of school?

$$-\frac{20}{3}$$

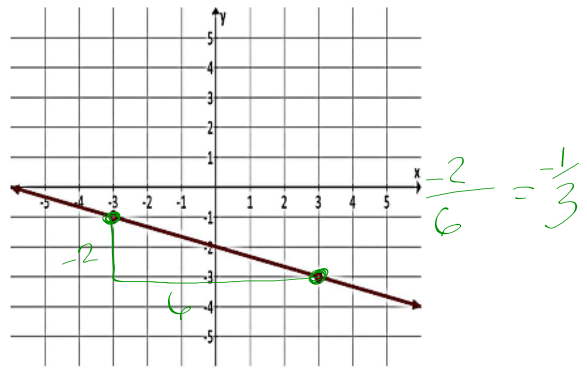
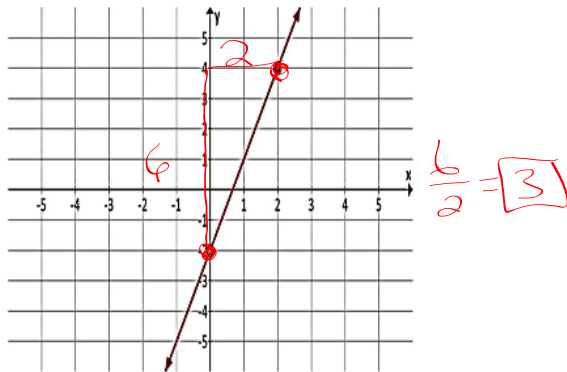
6. What is the average rate of change between the 6th and 11th weeks?

$$-\frac{100}{5} \text{ or } -20$$

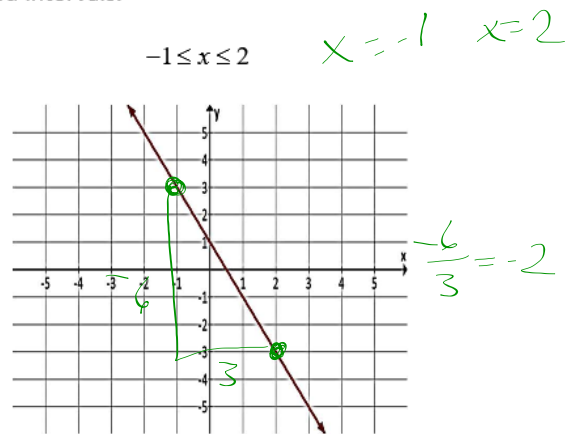
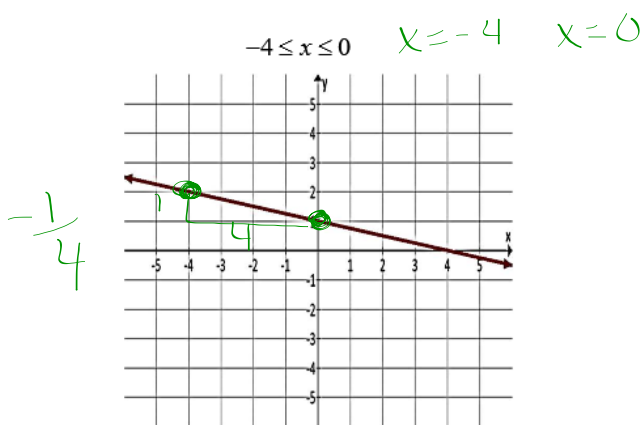
7. What is the average rate of change between the 5th and 8th weeks?

$$\frac{150}{3} = 50$$

8. Find the slope average rate of change between the two points indicated on the graph.



9. Find the average rate of change between the indicated intervals.



10. Find the average rate of change between the indicated interval $-4 \leq x \leq 0$.

Given $y = 3x + 4$

x	y
-4	-8
0	4

$4 < -8 > 12$

$$3(-4) + 4 = -8$$

$$3(0) + 4 = 4$$

$$\frac{12}{4} = 3$$

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

x	y
-4	4
0	2

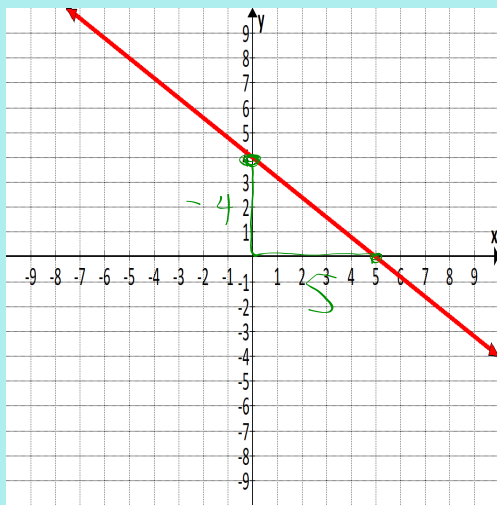
$4 < 2 > -2$

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

$$-\frac{1}{2}(0) + 2 = 2$$

$$\frac{-2}{4} = -\frac{1}{2}$$

Find the following?

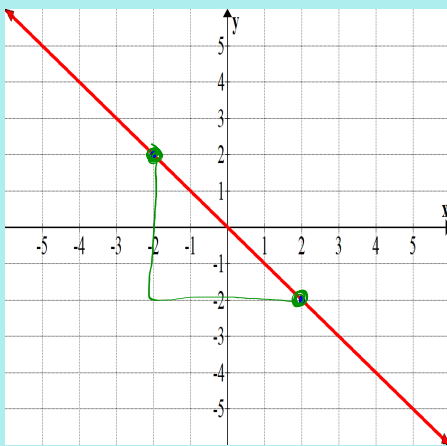


x-int: $(5, 0)$

y-int: $(0, 4)$

AROC: $-4/5$

What is the end behavior and the AROC between $x = -2$ and $x = 2$?



$$\text{AROC: } -\frac{4}{4} = -1$$

$$\text{as } x \rightarrow -\infty \quad f(x) \rightarrow \underline{\infty}$$

$$\text{as } x \rightarrow \infty \quad f(x) \rightarrow \underline{-\infty}$$

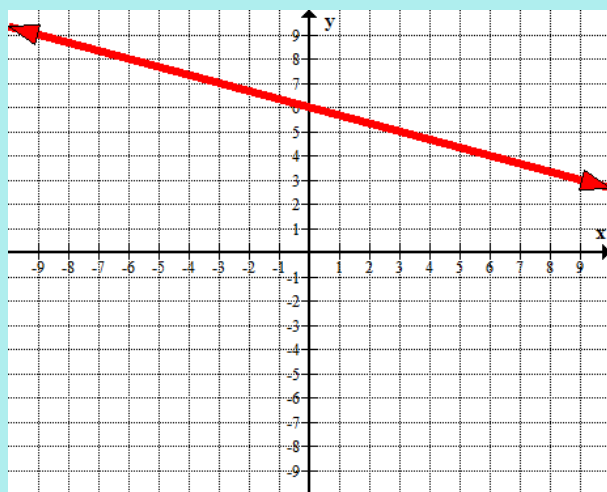
What is the average rate of change between the 4th and 7th month?

Months	Height
1	60in
2	65in
3	72in
4	80in
5	84in
6	88in
7	92in

3

12

$$\frac{12}{3} = 4$$



Domain: \mathbb{R} Range: \mathbb{R}

x-int: N/A y-int: $(0, 6)$

Int of Increase: N/A

Int of Decrease: \mathbb{R}

Min: N/A Max: N/A Sym: N/A

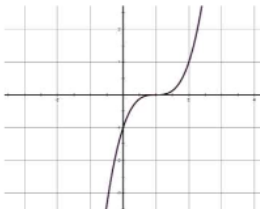
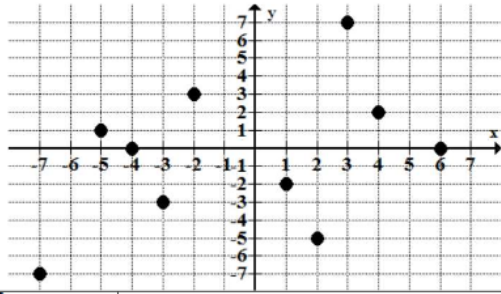
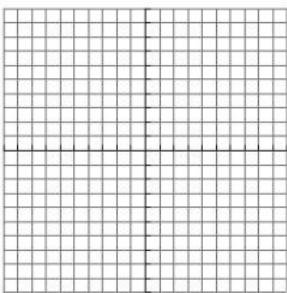
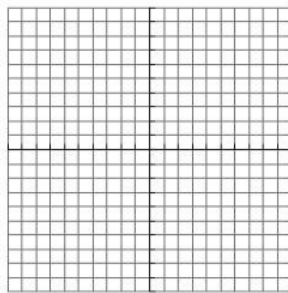
as $x \rightarrow \infty$ $f(x) \rightarrow -\infty$

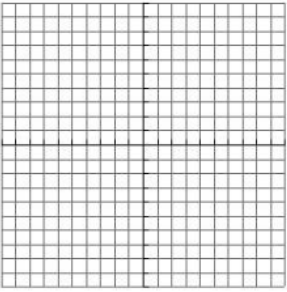
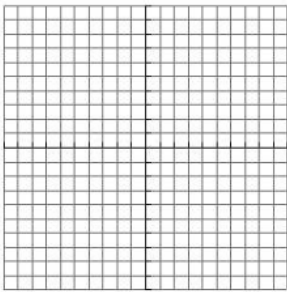
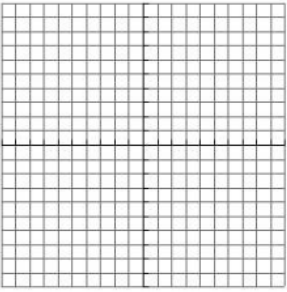
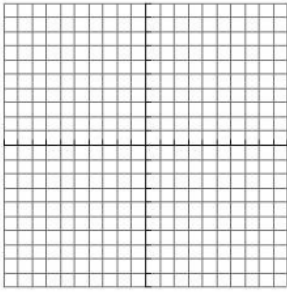
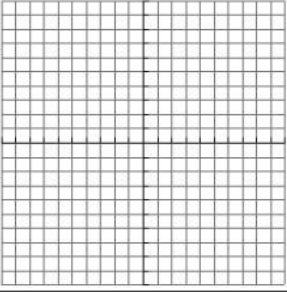
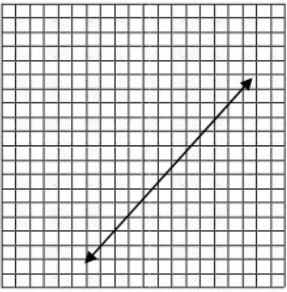
as $x \rightarrow -\infty$ $f(x) \rightarrow \infty$

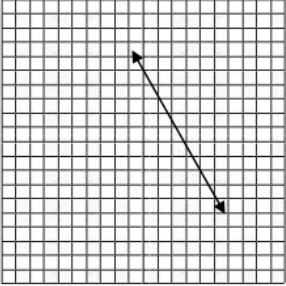
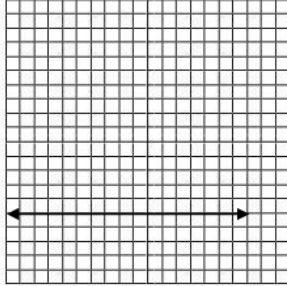
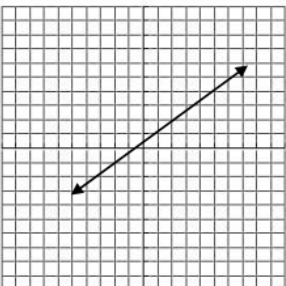
TEST REVIEW

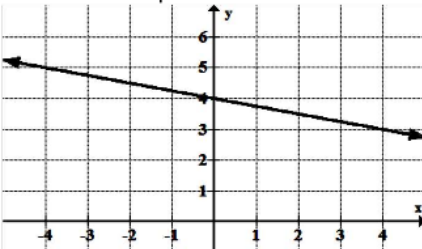
Algebra 1
Unit 2 Review

Name: _____
Date: _____ Block: _____

What you need to know & be able to do	Things to remember	Examples											
Determine if a relation is a function.	Every input only has one output (each 'x' only has one 'y') Use the vertical line test on graphs.	1. Determine if the graph is a function. 	2. Determine if the table represents a function. <table border="1" data-bbox="1123 665 1208 822"><tr><th>x</th><th>y</th></tr><tr><td>-1</td><td>4</td></tr><tr><td>0</td><td>5</td></tr><tr><td>2</td><td>6</td></tr><tr><td>-1</td><td>7</td></tr></table>	x	y	-1	4	0	5	2	6	-1	7
x	y												
-1	4												
0	5												
2	6												
-1	7												
Evaluate functions.	f(x) function notation f(2) means you must substitute a '2' for every 'x' in the function!	3. Evaluate f(4). $f(x) = x^2 + 3x - 1$	4. Find the value of $f(x) = 4x - 2$ when $x = -1$.										
5. Find the value of f(5). 6. Find the value of x for f(x)=2. 7. Identify the maximum and minimum in function notation.													
													
Graph a linear function.	$y = mx + b$ *Always graph the y-intercept first!	8. Graph: $f(x) = -\frac{2}{3}x + 6$ 	9. Graph: $-4x + 2y = 10$ 										

		10. Graph: $y = -6$	11. Graph: $3x - 4y = -12$
			
Graph a linear inequality.	Dashed line: $< \text{ or } >$ Solid line: $\leq \text{ or } \geq$ *Don't forget to shade!	7. Graph: $y < 2x - 8$	8. Graph: $2x + 3y \geq 9$
			
		9. Graph: $x > -2$	
			
Identify important characteristics of a function.	x-intercept(s): where the graph crosses the x-axis. y-intercept(s): where the graph crosses the y-axis. maximum/minimum: the highest or lowest points.	10. 	Domain: _____ Range: _____ Interval of Increase: _____ Interval of Decrease: _____ Maximum: _____ Minimum: _____ End Behavior: As $x \rightarrow \infty$, $f(x) \rightarrow$ _____ As $x \rightarrow -\infty$, $f(x) \rightarrow$ _____ Zeros: _____ X-Intercept: _____ Y-Intercept: _____

	<p>Domain: input, x-values</p> <p>Range: output, y-values</p> <p>Increase: where the graph looks like it's going "up hill".</p> <p>Decrease: where the graph looks like it's going "down hill".</p> <p>Constant: where the graph is horizontal.</p> <p>End-Behavior: $as\ x \rightarrow \infty, f(x) \rightarrow$ _____ $as\ x \rightarrow -\infty, f(x) \rightarrow$ _____</p>	<p>11.</p>  <p>Domain: _____ Range: _____</p> <p>Interval of Increase: _____</p> <p>Interval of Decrease: _____</p> <p>Maximum: _____ Minimum: _____</p> <p>End Behavior: As $x \rightarrow \infty, f(x) \rightarrow$ _____ As $x \rightarrow -\infty, f(x) \rightarrow$ _____</p> <p>Zeros: _____ X-Intercept: _____ Y-Intercept: _____</p>	<p>12.</p>  <p>Domain: _____ Range: _____</p> <p>Interval of Increase: _____</p> <p>Interval of Decrease: _____</p> <p>Maximum: _____ Minimum: _____</p> <p>End Behavior: As $x \rightarrow \infty, f(x) \rightarrow$ _____ As $x \rightarrow -\infty, f(x) \rightarrow$ _____</p> <p>Zeros: _____ X-Intercept: _____ Y-Intercept: _____</p>															
<p>Calculate the average rate of change.</p>	<p>"slope"</p> $m = \frac{y_2 - y_1}{x_2 - x_1}$	<p>13. What is the average rate of change from $x=0$ to $x=4$?</p> 	<p>14. Which function has the greater rate of change?</p> <p>Function 1: $y = 2x + 3$</p> <p>Function 2: (0, 4), (1, 8), (2, 12)</p>															
		<p>15. The table to the right shows the distance (in meters) Runner A and Runner B ran at different time intervals. Which runner has a faster average speed from 20 to 31 seconds?</p>	<table border="1" data-bbox="981 1344 1348 1467"> <thead> <tr> <th>Time</th> <th>Runner A</th> <th>Runner B</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0</td> <td>0</td> </tr> <tr> <td>9</td> <td>120</td> <td>120</td> </tr> <tr> <td>20</td> <td>168</td> <td>213</td> </tr> <tr> <td>31</td> <td>287</td> <td>287</td> </tr> </tbody> </table>	Time	Runner A	Runner B	0	0	0	9	120	120	20	168	213	31	287	287
Time	Runner A	Runner B																
0	0	0																
9	120	120																
20	168	213																
31	287	287																
<p>Write the equation of a line.</p>	$y - y_1 = m(x - x_1)$	<p>16. Write the equation of the line that has a slope of $-\frac{1}{2}$ and contains the point (4, 6).</p>	<p>17. Write the equation of the line that contains the points (-2, 2) and (2, -2).</p>															

		18. Write the equation of the line that is parallel to the line $y = -4x - 1$ and contains the point (1, 5).	19. Write the equation of the line that is perpendicular to the line $y = 3x + 2$ and contains the point (0, 11).										
		20. Write the equation of the line that has a slope of 5 and y-intercept at (0, 3).	21. Write the equation of the line the corresponds to the following table: <table><tr><td>x</td><td>2</td><td>5</td><td>8</td><td>11</td></tr><tr><td>y</td><td>-6</td><td>-4</td><td>-2</td><td>0</td></tr></table>	x	2	5	8	11	y	-6	-4	-2	0
x	2	5	8	11									
y	-6	-4	-2	0									
		22. Write the equation of the line that corresponds to the graph below: 											
Arithmetic Sequences	Explicit form: $a_n = a_1 + (n - 1)d$ Recursive form: $a_1 =$ $a_n = a_{n-1} +$	23. Write the EXPLICIT and RECURSIVE formula for the following sequence: 5, 9, 13, 17...	24. Write the EXPLICIT and RECURSIVE formula for the following sequence: -3, -8, -13, -18...										
		25. Given the sequence -3, 0, 6... find the following term values: $a_{19} =$ $a_{32} =$	26. Given the sequence 7, 15, 23, 31... find the following term values: $a_6 =$ $a_{24} =$										
		27. Determine the first four terms of the sequence: $a_1 = 7$ $a_n = a_{n-1} - 3$	28. Determine the first four terms of the sequence: $a_1 = -4$ $a_n = a_{n-1} + 5$										

Attachments

Syllabus - Math I A.doc