

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

1. What is the slope of the line passing through (5,-1) and (0,-11)?

$$\frac{-11 - (-1)}{0 - 5} = \frac{-11 + 1}{-5} = \frac{-10}{-5} = \boxed{2}$$

m =  $\frac{2 \text{ or } 2}{1}$  (positive/negative/zero/undefined)

2. What is the slope of the line that passes through the points (-2,-3) and (-8,1)?

$$\frac{1 - (-3)}{-8 - (-2)} = \frac{1 + 4}{-8 + 2} = \frac{5}{-6}$$

3. What is the slope of the equation  $-2x + 3y = 9$ ?  
\*\*get into slope-intercept form!

$$\frac{3y}{3} = \frac{2x + 9}{3} \rightarrow \boxed{y = \frac{2}{3}x + 3}$$

4. Examine the problem below. Where has the student gone wrong? Help them fix it.

$j(x) = -3x - 1$  Line 1  
 $j(-2) = -3(-2) - 1$  Line 2

$j(-2) = 6 - 1$  Line 3  
 $j(-2) = -5$  Line 4

6 - 1 = 5, not -5!! Line 4 FIX

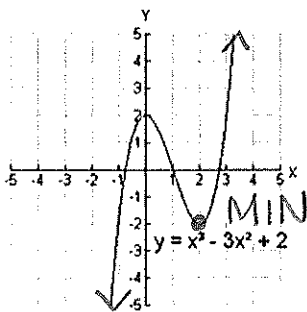
5. Given  $f(x) = 3x - 10$

a.  $f(-3) = -19$   $3(-3) - 10 = -9 - 10$

b.  $f(0) = -10$   $3(0) - 10 = 0 - 10 = -10$

6. For the graph below, what is/are the relative minimum point(s)?

(2, -2)



7. Let  $h(x) = -3x + 5$ . If  $h(x) = 11$ , solve for x.

$11 = -3x + 5$

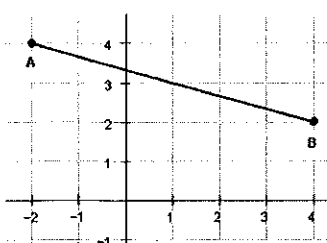
$6 = -3x \rightarrow \boxed{x = -2}$

8. Find the following from the graph.

Domain  $\boxed{[-2, 4]}$

Range  $\boxed{[2, 4]}$

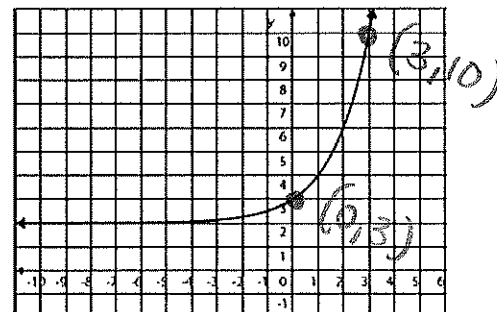
Slope (m)  $\frac{-2}{6}$   
or  $-\frac{1}{3}$



9. Use graph to find following:

$k(0) = \underline{3}$

$k(3) = \underline{10}$



10. Sketch an example for each function.

Linear

Quadratic

Exponential

Cubic



11. Given the function  $f(x) = -4x + 6$ , solve for the x and y intercepts.

$y = -4(0) + 6$  y-int  $\left\{ \begin{array}{l} 0 = -4x + 6 \\ -6 = -4x \end{array} \right.$  x-int  
 $y = 0 + 6$   
 $y = 6 \rightarrow (0, 6)$   $x = \frac{3}{2} \rightarrow (\frac{3}{2}, 0)$

12. Given the table of values, identify the x and y intercepts.

x	4	2	0	-8	4	-15	-27
y	-10	-11	7	-1	1	0	20

y-int.

x-int.

13. If  $f(x) = 4x - 3$  and the domain of the function is {2, 4, 6}. What is the range of f(x)?

$4(2) - 3 = 8 - 3 = \boxed{5}$

$4(4) - 3 = 16 - 3 = \boxed{13}$

$4(6) - 3 = 24 - 3 = \boxed{21}$

Range =

$\{5, 13, 21\}$

14. Which of the following lines is parallel to  $y = 2x - 1$ ?  
(\*You will need to solve for slope-intercept form first)

A.  $2x + y = 5$

C.  $3x - 3y = 3$

B.  $2x + y = -5$

D.  $-x + y = 11$

15. If the slope (m) of a line f(x) is  $\frac{6}{5}$ , what are....

m of parallel line =  $\frac{6}{5}$

m of perp. line =  $-\frac{5}{6}$

16. Let function  $g(x) = -\frac{4}{11}x + 5$ . Find  $g(11)$ .

$-\frac{4}{11}(11) + 5 = -4 + 5 = \boxed{1}$

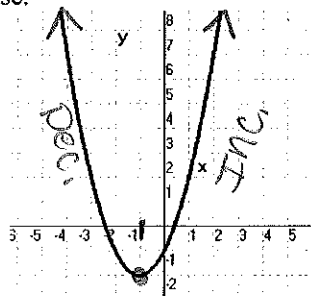
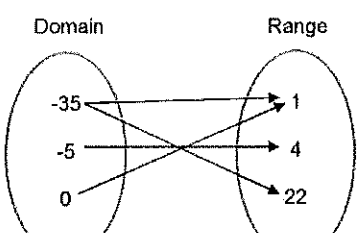
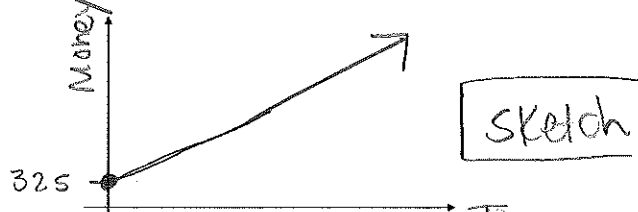
17. List definitions for:

Slope steepness of line

Zeros x-intercepts

Y-intercept where graph crosses y-axis

Slope-intercept form  $y = mx + b$   
 $\rightarrow$  Linear equation

<p>18. Simplify the expression.</p> $(-6x^4 + 5x - 7) - (11x^4 - 4x + 15)$	<p>Answer <u><math>-17x^4 + 9x - 22</math></u></p>																								
<p>19. Solve the equation.</p> $\frac{-2x - 10}{3} = 8$ $\begin{array}{r} -2x - 10 = 24 \\ +10 \quad +10 \\ \hline -2x = 34 \end{array}$	<p>Answer <u><math>x = -17</math></u></p>																								
<p>20. For the quadratic function, list the intervals of increase and decrease.</p> 	<p>Interval of increase <u><math>(-1, \infty)</math></u></p> <p>Interval of decrease <u><math>(-\infty, -1)</math></u></p>																								
<p>21. For the quadratic above, list the domain and range.</p> <p><u>All</u> x-values      <u>All</u> y's</p>	<p>Domain <u><math>(-\infty, \infty)</math> or <math>\mathbb{R}</math> or <math>-\infty &lt; x</math></u></p> <p>Range <u><math>[-2, \infty)</math> or <math>-2 \leq y</math></u></p>																								
<p>22. Is the following a function? You must explain why or why not.</p> 	<p>Function? Yes or <u>No</u> (circle answer)</p> <p>Explanation: <u>An x-value repeats...</u>  <u>-35 goes to 1 and 22,</u>  <u>one input cannot go to</u>  <u>more than one output.</u></p>																								
<p>23. The starting balance of Bethany's savings account is \$325. Each month, she plans to deposit \$40.</p> <p>A. Write a function that models the scenario.</p> <p>B. Create a graph to show how much money Katie has in her savings account each month for the first year.</p> <p><b>** You MUST fill in the table!</b></p> <p><i>* After 12 mths, has \$805 (LINEAR)</i></p>	<p>Function that models this scenario: <u><math>y = 325 + 40x</math></u></p> <p>Fill in the table, sketch the graph.</p> <table border="1" data-bbox="771 1438 1494 1512"> <tr> <td>x</td> <td>1</td> <td>2</td> <td>3</td> <td>4</td> <td>5</td> <td>6</td> <td>7</td> <td>8</td> <td>9</td> <td>10</td> <td>11</td> </tr> <tr> <td>y</td> <td>365</td> <td>405</td> <td>445</td> <td>485</td> <td>525</td> <td>565</td> <td>605</td> <td>645</td> <td>685</td> <td>725</td> <td>765</td> </tr> </table>  <p style="text-align: right;">12 <u>805</u></p>	x	1	2	3	4	5	6	7	8	9	10	11	y	365	405	445	485	525	565	605	645	685	725	765
x	1	2	3	4	5	6	7	8	9	10	11														
y	365	405	445	485	525	565	605	645	685	725	765														
<p>24. Let <math>f(x) = 2x^2 - 3x</math>, <math>g(x) = -7x - 2</math>, and <math>h(x) = -5x</math>.</p> <p>A) Find <math>h(x) - g(x)</math></p> <p>B) Find <math>f(2) + g(0)</math></p>	$(-5x) - (-7x - 2) = 2x + 2$ $[2(2)^2 - 3(2)] + [-7(0) - 2] = f(2) + g(0)$ <p>Answer A <u><math>2x + 2</math></u>      Answer B <u><math>\emptyset</math></u></p>																								