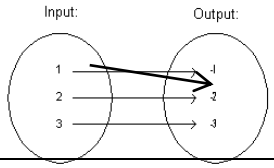
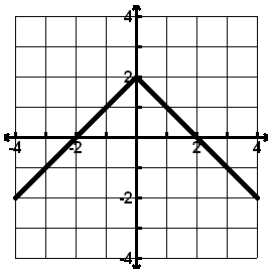
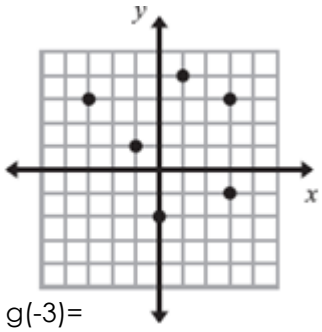
Name: _____ Date: _____

Use the following to review for you test. Work the Practice Problems on a separate sheet of paper.

Main Ideas	**Things to remember**		
1. Function Notation	1. Each input must have EXACTLY ONE output 2. Does it pass the vertical line test?	Determine whether the following are functions or relations. 1. {(1,2), (2,3), (3, 4)} 2. 	3. 
2. Naming Polynomials	1. Standard Form: Exponents in decreasing order 2. Polynomials are named by the number of terms & by degree	4. Write $8 - x + 3x^3$ in Standard Form. 5. Write $2x^2 - 6 + 3x - x^3$ in Standard Form.	Name each polynomial by the number of terms and the degree. 6. 2x + 4 7. $6x^2 - 4x + 2$
3. Evaluating Functions	1. f(x) is read "f of x" 2. f(x) is a fancy way of writing "y" in an equation. 3. Domain: all x-coordinates or inputs 4. Range: all y-coordinates or outputs	Use the following functions to find the given value: $f(x) = x^2 - 2$ $h(x) = x^3 - 3x$ 9. f(2)= 10. f(-2)= 11. h(2)= 12. h(1)=	Use the graph to find the indicated values.  13. g(-3)= 14. g(1)=
4. Adding and Subtracting Polynomials	1. Don't forget to distribute the negative. 2. Remember you must add like terms to simplify completely.	Simplify each expression. 15. -2(1 + 4x) - 3(-x + 6) 16. $-2(3y - 3x) + 6(1 - 4x)$	Simplify each expression. 17. $(x^2 - 2x + 3) - (4x^2 + x - 2)$ 18. $(5x^2 - 6x + 12) + (3x - 25)$
5. Arithmetic Sequences	For a sequence to be arithmetic, it must have a common difference. The Explicit rule: $a_n = a_1 + d(n-1)$ The Recursive rule: $a_1 = ??$ $a_n = a_{n-1} + d$	Determine is the following sequences are arithmetic. If so, find the common difference and the next 3 terms. 24. 6, 12, 18, 24, … 25. 160, 80, 40, 20, …	For the following sequence, find a1 and d and state the explicit formula for the general term. 26. -10, -4, 2, 8, 14, … 27. 36, 31, 26, 21, … Write the formula with the given information and find the indicated term. 28. 46th term: $a_1 = 46$; d = 46

<table>
<tr>
<td>4. Combining Functions</td>
<td>1. Watch your signs!
2. Don't forget to distribute the negative.
3. Remember you must add like terms to simplify completely.</td>
<td>Given the functions $f(x)=2x+4$, $g(x)=4x-10$, and h(x)= -3
19. Find f(x) + g(x).
20. Find f(x) – g(x).
21. Find h(x) · g(x)
22. Find 2f(x) + 3h(x)</td>
<td>23. Andre has a regular savings account that has $250 in it. Each month, he adds $45 to it. He is also saving to go to Europe. He deposits $100 to start the account and decides to deposit $60 each month
a. Write a function to represent the prices r(x) for Andre's regular savings account and e(x) to represent Andre's Europe savings account.
b. Combine the two functions into one function t(x) = r(x) + e(x).
c. Calculate his total savings after 3 months and 6 months.</td>
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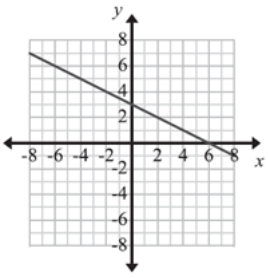
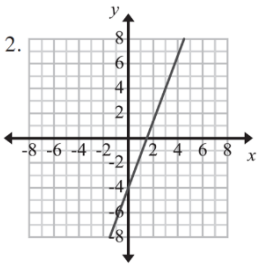
<tr>
<td>6. Characteristics of Linears</td>
<td>Domain: x-coordinates
Range: Y-coordinates
x-intercept: (x, 0)
y-intercept: (0,y)
Continuous: no breaks
Discrete: has gaps or breaks</td>
<td> 
Domain:
Range:
Intercepts:
Increasing/ Decreasing:</td>
<td>2.
 
Domain:
Range:
Intercepts:
Increasing/ Decreasing?</td>
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<tr>
<td>7. Rate of Change</td>
<td>$\frac{f(x_2)-f(x_1)}{x_2-x_1}$
Linear functions have a constant rate of change.
Horizontal lines have 0 rate of change.
Vertical lines have an undefined rate of change.</td>
<td>Find the average rate of change on f(x)= 3x – 2 from [2,6].
Find the rate of change from year 1 to year 3.
<table><tr><th>Days (x)</th><th>Millions of people f(x)</th></tr><tr><td>1</td><td>5</td></tr><tr><td>2</td><td>11</td></tr><tr><td>3</td><td>18</td></tr><tr><td>4</td><td>21</td></tr></table></td>
<td><table><tr><td>x</td><td>y</td></tr><tr><td>1</td><td>3.75</td></tr><tr><td>2</td><td>5</td></tr><tr><td>3</td><td>6.25</td></tr><tr><td>4</td><td>7.5</td></tr><tr><td>5</td><td>8.75</td></tr></table>Use the table to find the rate of change between
a. 1 and 2
b. 1 and 4
What do these results tell us about this data?</td>
</tr>
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