Name: _____ Per: _____

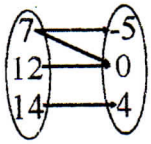
Functions

The rule of functions is simple: "Every girl gets one guy, every *x* gets one *y*."

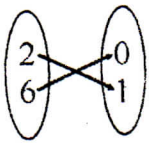
In order for the relation to *function*, a single *y*-value can relate to as many *x*-values as it chooses, but a single *x*- value can only relate to <u>one</u> *y*-value. Remember, *x* is the input and *y* is the output ($x \rightarrow y$).

Are the relations shown below *functions*?

1.



2.



3.

X	Y
0	3
5	2
9	2
10	3

4. {(7, 2), (-8, 5), (6, 2)}

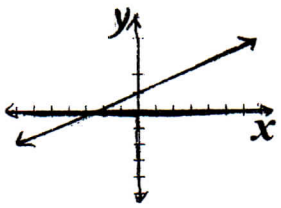
5. {(3, 6), (9, 6), (2, 6)}

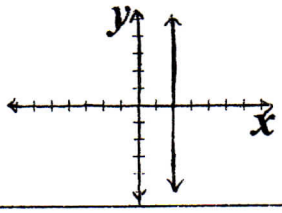
6. {(5, 0), (5, 1), (5, 9)}

When shown a graph, if you can draw a vertical line (up and down) through two or more points on the graph, then that means that that *x*-value relates to more than one *y*-value. Therefore, it is <u>not a function</u>.

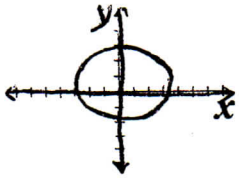
Use the vertical-line test to determine if the graphs below are *functions*.

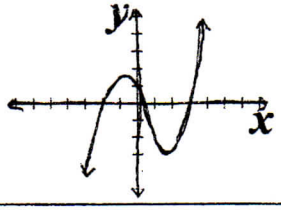
7.



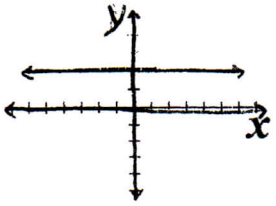


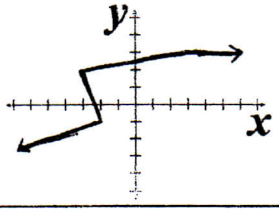
8.



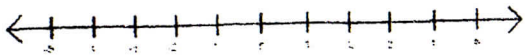
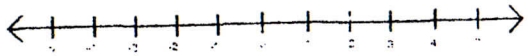
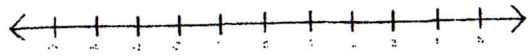
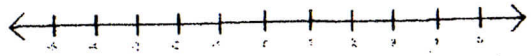
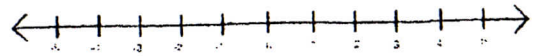
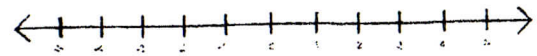


9.





P.9 – Interval and Set-Builder Notation (9/16/09)

#	Number Line	Inequality	Set-Builder Notation	Interval Notation
1		$-2 < x \leq 4$		
2			$\{x \mid -4 \leq x < 3\}$	
3				$[-2, -5]$
4				
5				$[-5, \infty)$
6		$-\infty < x < 2$ OR $x < 2$		
7				$(-\infty, 3.5]$

Name _____ Date _____ Class _____

LESSON 1-5

Practice B

Properties of Exponents

Write each expression in expanded form.

1. $-3x^5$ _____

2. $(j - 3k)^3$ _____

3. $7t^2(-4r)^4$ _____

Evaluate each expression.

4. $-(-2)^{-4}$ _____

5. $\left(\frac{5}{8}\right)^{-2}$ _____

6. $\left(-\frac{3}{2}\right)^{-3}$ _____

Simplify each expression. Assume all variables are nonzero.

7. $\frac{68f^5g^{-3}}{4f^{-3}g^6}$ _____

8. $(-4a^3b^7)^{-2}$ _____

9. $6m^4n^9(-3m^2n^3)^{-2}$ _____

Use function notation to simplify (just plug 'n' chug!).

Example	Your Turn	Still Your Turn
$f(x) = 3x + 1$ $f(2) = ?$ *Plug 2 in for x.* $f(2) = 3(2) + 1$ $f(2) = 6 + 1$ $\boxed{f(2) = 7}$	$p(x) = 12x + 4$ $p(5) = ?$	$b(x) = 5x - 1$ $b(8) = ?$
$m(x) = 6x^2$ $m(20) = ?$ *Plug the 20 in for x.* $m(2) = 6(20)^2$ $m(2) = 6(400)$ $\boxed{m(20) = 2400}$	$g(x) = x^2 + 7$ $g(2) = ?$	$h(x) = 3x^2 - 2$ $h(3) = ?$
$k(x) = 2x - 4$ $k(☺) = ?$ *Plug ☺ in for x.* $k(☺) = 2(☺) - 4$ $\boxed{k(☺) = 2☺ - 4}$	$r(x) = 9x + 2$ $r(\#) = ?$	$b(x) = 5x - 1$ $b(\$) = ?$
$g(x) = 6x + 9$ $g(m) = ?$ *Plug m in for x.* $g(m) = 6(m) + 9$ $\boxed{g(m) = 6m + 9}$	$j(x) = 3x + 7$ $j(p) = ?$	$t(x) = 5x - 9$ $t(v) = ?$

Name _____ Date _____ Class _____

LESSON 1-3

Practice B

Square Roots

Estimate to the nearest tenth.

1. $\sqrt{78}$

2. $-\sqrt{57}$

3. $\sqrt{39}$

Simplify each expression.

4. $\sqrt{243}$

5. $\frac{\sqrt{90}}{\sqrt{40}}$

6. $\sqrt{42} \cdot \sqrt{3}$

7. $-\frac{4}{\sqrt{144}}$

8. $\sqrt{\frac{125}{5}}$

9. $-\sqrt{320}$

Simplify by rationalizing each denominator.

10. $\frac{6}{\sqrt{5}}$

11. $\frac{-3\sqrt{15}}{\sqrt{3}}$

12. $\frac{\sqrt{13}}{4\sqrt{6}}$

Add or subtract.

13. $7\sqrt{5} - 10\sqrt{5}$

14. $12\sqrt{3} + 3\sqrt{12}$

15. $-6\sqrt{50} + 4\sqrt{32}$

Solve.

16. A building has a mural painted on an outside wall. The mural is a square with an area of 14,400 ft^2. What is the width of the mural?