

11-12-19

- Use interval notation to describe domain & range
- evaluate functions:
 - using a graph or table

$$\begin{aligned}
 w(x) &= -5x + 6 \\
 w(5) &= -5(5) + 6 \\
 &= -25 + 6 \\
 &= -19 \\
 &(5, -19)
 \end{aligned}$$

g(x)	x	y
	1	1
	2	2
	3	4
	5	6
	7	8

$$g(3) = 4$$

$$g(x) = 6$$

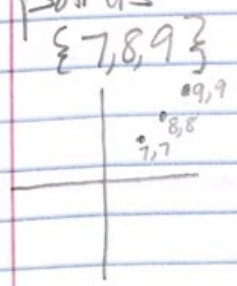
$$x = 5$$

11-13-19

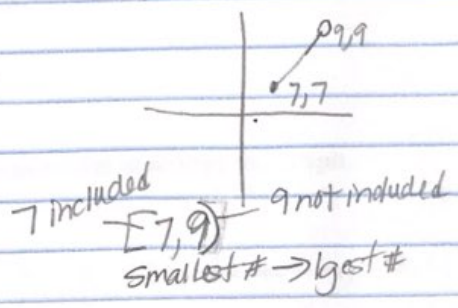
Use interval notation $[] ()$ to describe domain & range.

<u>Set Notation</u>	<u>Interval Notation</u>	<u>Ineq. Not.</u>	<u># Line Not.</u>
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• used for separate, ind. points



• used for continuous "lines"



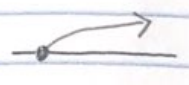
$$7 \leq x < 9$$



can't do

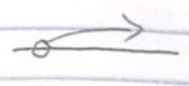
$$[1.7, \infty)$$

$$x \geq 1.7$$



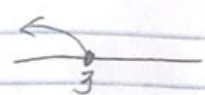
$$(5, \infty)$$

$$x > 5$$



$$(-\infty, 3]$$

$$x \leq 3$$



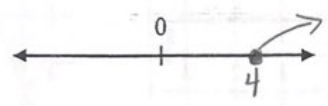
11-13-19

Math II
Unit 1 day 4 Interval Notation, Domain & Range

NAME: _____
Period: _____ Date: _____

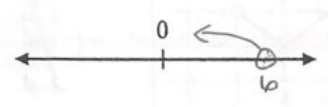
Put in interval notation and draw a graph of each inequality.

1. $x \geq 4$



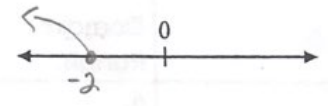
1. $[4, \infty)$

2. $x < 6$



2. $(-\infty, 6)$

3. $x \leq -2$



3. $(-\infty, -2]$

Write each interval as an inequality.

4. $(-\infty, -8]$

4. $x \leq -8$

5. $[5, \infty)$

5. $x \geq 5$

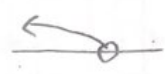
6. $(-2, \infty)$

6. $x > -2$

7. $[-10, \infty)$

7. $x \geq -10$

8. $(-\infty, 6)$



8. $x < 6$

Write interval notation that describes the graph.

9.



9. $1 < x < 5$

10.



10. $2 \leq x \leq 7$

11.



11. $-3 < x \leq -1$

11-14-19

Evaluate the function at the given value. Show your work for full credit.

1. $g(n) = 4n - 5; g(-2)$
 $4(-2) - 5$
 $-8 - 5 = -13$
 $(-2, -13)$

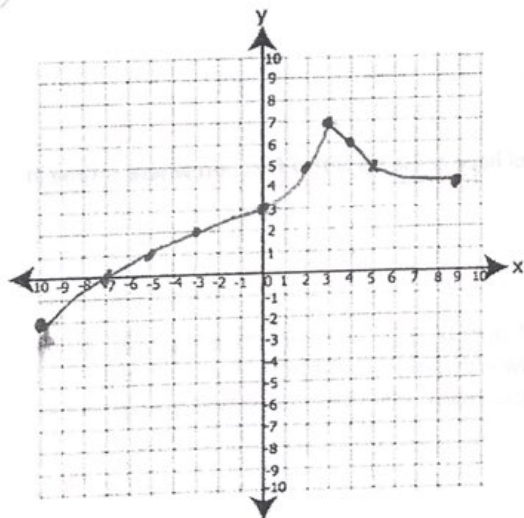
2. $h(x) = x^2 - 3x; h(3)$
 $(3)^2 - 3(3)$
 $9 - 9 = 0$
 $(3, 0)$

Evaluate the following functions given $f(x) = -3x + 4$ and $g(x) = 4x - 9$

3. Find $f(4)$
 $-3(4) + 4$
 $-12 + 4 = -8$
 $(4, -8)$

4. Find x if $g(x) = 3$
 $3 = 4x - 9$
 $12 = 4x$
 $\frac{12}{4} = \frac{4x}{4}$
 $3 = x$
 $(3, 3)$

Given this graph of the function $k(x)$:



5. Find $k(4) = 6$
 $(4, 6)$

6. Find x when $k(x) = 3 = 0$
 $(0, 3)$

7. Give the domain of $k(x)$ $[-10, 9]$ Give the range of $k(x)$ $[2, 7]$
 ~~$[-10, 9]$~~ ~~$[-2, 7]$~~
 ~~$-10, -7, -5, -3, 0, 2, 3$~~ ~~$2, 0, 1, 2, 3, 5, 7, 6, 5, 4$~~
 $4, 5, 9$ $2, 0, 1, 2, 3, 5, 7, 6, 5, 4$
 *must use interval notation - too many #s to list; every # but $-10 \neq 9$
 lowest y value \swarrow highest y value

11-18-19

Slope Handout - Find slope thru pair of points

$$1. \begin{matrix} (-8, 5) & (4, -16) \\ x_1 & x_2 \\ y_1 & y_2 \end{matrix} \quad \left| \frac{y_2 - y_1}{x_2 - x_1} \right|$$

$$\frac{-16 - 5}{4 - (-8)} = \frac{-21}{12} = \frac{-7}{4}$$

$$2. \begin{matrix} (8, 15) & (-10, -4) \\ x_1 & x_2 \\ y_1 & y_2 \end{matrix}$$

$$\frac{-4 - 15}{-10 - 8} = \frac{-19}{-18} = \frac{19}{18}$$

$$3. (5, 18), (-9, -14)$$

$$\frac{-14 - 18}{-9 - 5} = \frac{-32}{-14} = \frac{16}{7}$$

$$7. (9, 2), (16, -2)$$

$$\frac{-2 - 2}{16 - 9} = \frac{-4}{7}$$

$$4. (-9, -9), (9, -9)$$

$$\frac{-9 - (-9)}{9 - (-9)} = \frac{0}{18} = 0$$

$$8. (-15, 4), (-11, 11)$$

$$\frac{11 - 4}{-11 - (-15)} = \frac{7}{4}$$

$$5. (19, 10), (-7, 13)$$

$$\frac{13 - 10}{-7 - 19} = \frac{3}{-26}$$

$$9. (-8, -20), (13, 10)$$

$$\frac{10 - (-20)}{13 - (-8)} = \frac{30}{21} = \frac{10}{7}$$

$$6. (9, -16), (4, 13)$$

$$\frac{13 - (-16)}{4 - 9} = \frac{29}{-5}$$

$$10. (20, 3), (-18, 9)$$

$$\frac{9 - 3}{-18 - 20} = \frac{6}{-38} = \frac{3}{19}$$

$$11. (-3, -14), (14, -6)$$

$$\frac{-6 - (-14)}{14 - (-3)} = \frac{8}{17}$$

$$15. (-3, -16), (-6, -12)$$

$$\frac{-12 - (-16)}{-6 - (-3)} = \frac{4}{-3}$$

11-19-19

Coord Alg AROC Review B Woodward NAME _____ pd _____

1. What is meant by "average rate of change"? *the slope b/t 2 points*
2. What do you need to find average rate of change? *2 points*

Find the average rate of change for the following functions over the given intervals.

3. $f(x) = 3^x$ on the interval $[0, 3]$

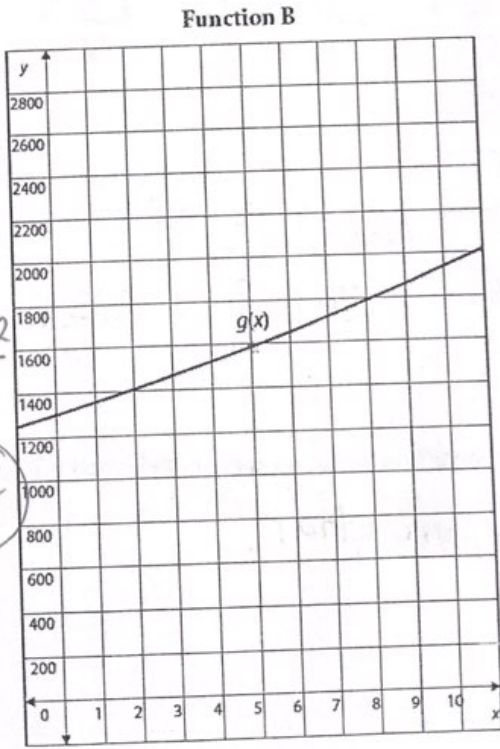
$f(0) = 3^0 = 1$ $(0, 1)$ $\frac{27-1}{3-0} = \frac{26}{3}$

$f(3) = 3^3 = 27$ $(3, 27)$

4. Which has the greater average rate of change - Function A on $[2, 6]$ OR Function B on $[5, 8]$?

Function A

x	f(x)
0	1400
2	1546.92
4	1709.25
6	1888.62
8	2086.82



A is greater

$[2, 6]$
 $(2, 1546.92)$
 $(6, 1888.62)$

$$\frac{1888.62 - 1546.92}{6 - 2} = \frac{341.7}{4} = 85.4$$

$[5, 8]$
 $(5, 1600)$
 $(8, 1800)$

$$\frac{1800 - 1600}{8 - 5} = \frac{200}{3} = 66.7$$

5. $h(x) = -\frac{3}{5}x + 8$. Find the average rate of change of $h(x)$ on the interval $\left[-12\pi, \frac{17}{13}e^7\right]$

$$-\frac{3}{5}$$

6. Use the table to find average rate of $k(x)$ on $[0,6]$.

x	y
-3	-3.625
0	-1
2	8
3	20
6	188
8	764
11	6140

$$(0, -1) \quad (6, 188)$$

$$\frac{188 + 1}{6} = \frac{189}{6} = 31.5$$

$$(2, 8) \quad (8, 764)$$

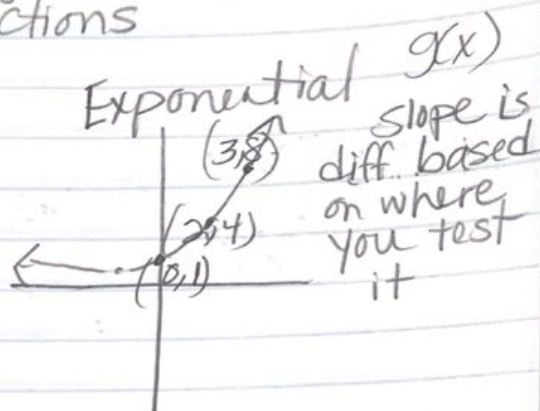
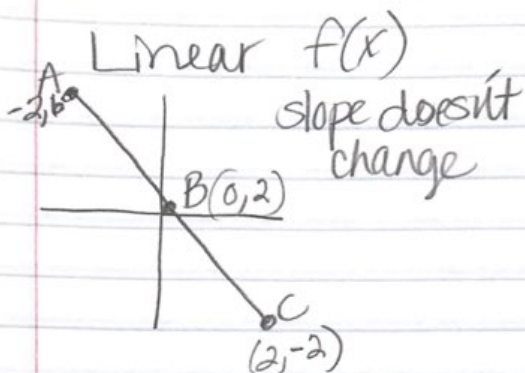
$$\frac{764 - 8}{8 - 2} = \frac{756}{6} = 126$$

7. Is $k(x)$ above a linear function or an exponential function? How do you know?

exponential

11-19-19

* Compute avg rate of change (AROC)
for linear & exponential functions



slope b/w A & B

$$\frac{2-6}{0-(-2)} = \frac{-4}{2} = -2$$

Find AROC $g(x)$ on $[0, 2]$

$$\frac{4-1}{2-0} = \frac{3}{2}$$

A \rightarrow C

$$\frac{-2-6}{2-(-2)} = \frac{-8}{4} = -2$$

$g(x)$ on $[0, 3]$

$$\frac{8-1}{3-0} = \frac{7}{3}$$

When you are doing AROC, they don't give you the points, only the x-values.

ex: Find AROC on $f(x)$ on the interval $[-2, 0]$ $(-2, 6)$ $(0, 2)$

- evaluate the y-values by looking at the graph, table, or equation