Name:

#:

Unit 5 Test-Part 1 { Practice }

Secondary Math II

Key

Multiple Choice - 2 Points Each

1 Daniel's grandma says that she will pay him $5 for every foul shot that he makes for the basketball team this season. The situation is modeled by the function: $M = 5 \cdot f$, where M is the amount of money and f represents the number of foul shots made. Which is the best representation of the domain and range of this scenario?

a	b	c	d
$D:[0,\infty)$ $R:[0,\infty)$	$D:\{0,1,2,...\}$ $R:\{5,6,7,...\}$	$D:\{0,1,2,...\}$ $R:\{0,5,10,...\}$	$D:(5,\infty)$ $R:(0,\infty)$

(c)

2 The volume of a cube is given by $V=s^3$, where s represents the length of the side of the square and V represents the volume. Your teacher asks you to create a cube that has a volume that is between 8 cubic feet and 27 cubic feet. Which is the best representation of the domain and range of this scenario?

a	b	c	d
$D:(0,\infty)$ $R:[8,27]$	$D:[8,27]$ $R:[2,3]$	$D:\{2,3\}$ $R:\{8,27\}$	$D:(2,3)$ $R:(8,27)$

(d)

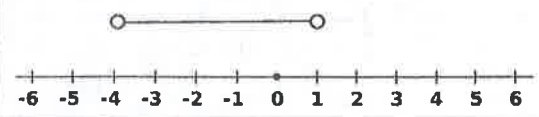
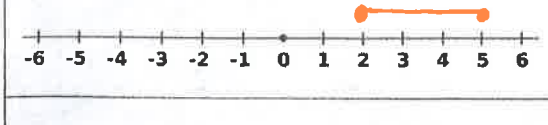
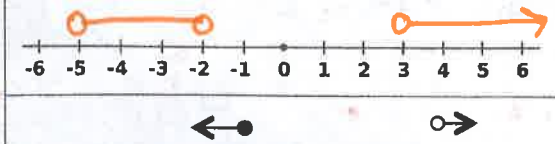
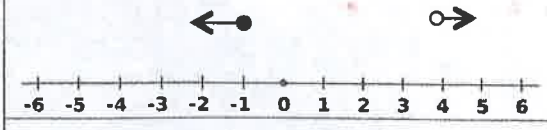
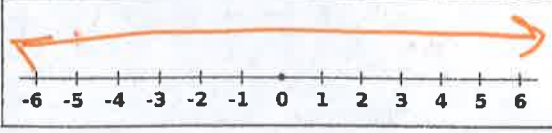
3 Olivia can drive 27 miles for every gallon of gas that she uses. Her car can hold 15 gallons of gas. She begins her trip with a full tank. The situation is modeled by the function: $M = 27 \cdot g$, where M is the number of miles traveled and g is the number of gallons of gas used. Which is the best representation of the domain and range of this scenario?

a	b	c	d
$D:[0,15]$ $R:[0,405]$	$D:[0,\infty)$ $R:[0,\infty)$	$D:\{0,1,2,...15\}$ $R:\{0,27,54,...,405\}$	$D:\{0,1,2,...\}$ $R:\{0,27,54,...\}$

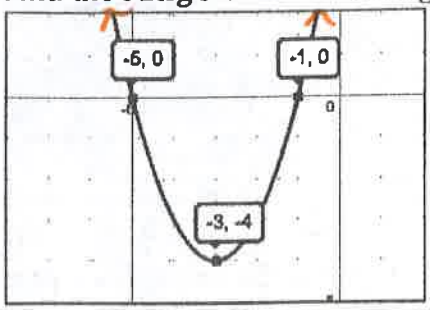
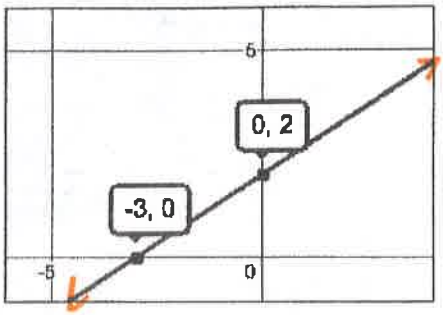
(a)

Fill in the Table Below -2 points each

4

Line Graph	Interval Notation	Inequality Symbols
	$(-4,1)$	$\{x \mid -4 < x < 1\}$
	$[2,5]$	$\{x \mid 2 \le x \le 5\}$
	$(-5,-2) \cup (3,\infty)$	$\{x \mid -5 < x < -2 \text{ or } 3 < x\}$
	$(-\infty,-1] \cup (4,\infty)$	$\{x \mid x \le -1 \text{ OR } x > 4\}$
	$(-\infty,\infty)$	$x \in R$

Matching - 3 Points Each

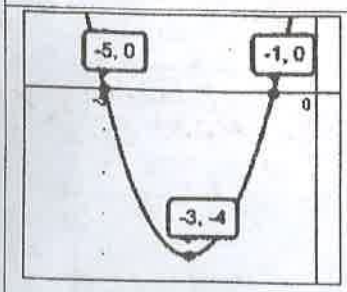
5	Find the ***domain*** of the following function. $\{(1,2),(3,4),(5-10)\}$	I
6	Find the ***range*** of the following function. X: -11, 9, 12 Y: 3, 14, 27	B
7	Find the ***range*** of the following function. 	E
8	Find the ***domain*** of the following function. 	N
9	Graph the following function and find the ***range.*** $f(x)=-\left(x^2\right)+3$	A
10	Graph the following function and find the ***range.*** $f(x)=2^x-3$	G

A	$(-\infty,3]$
B	$\{3,14,27\}$
C	$[-5,-1]$
D	$[-10,1]$
E	$[-4,\infty)$

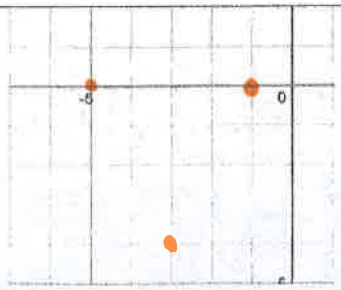
F	$(3,27)$
G	$(-3,\infty)$
H	$[-5,0]$
I	$\{1,3,5\}$
J	$[3,\infty)$

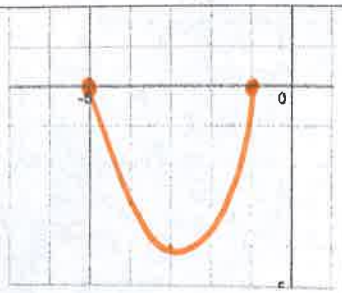
K	$\{2,4,-10\}$
L	$[-3,\infty)$
M	$(-4,\infty)$
N	$(-\infty,\infty)$
O	$\{-11,9,12\}$

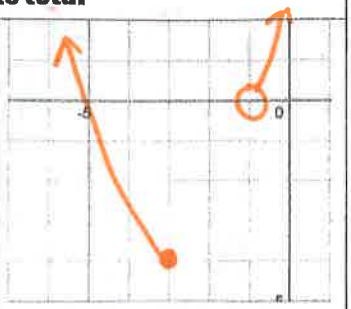
Graph the given function on each of the new domains. –6 points total



ORIGINAL


$D:\{-5,-3,-1\}$

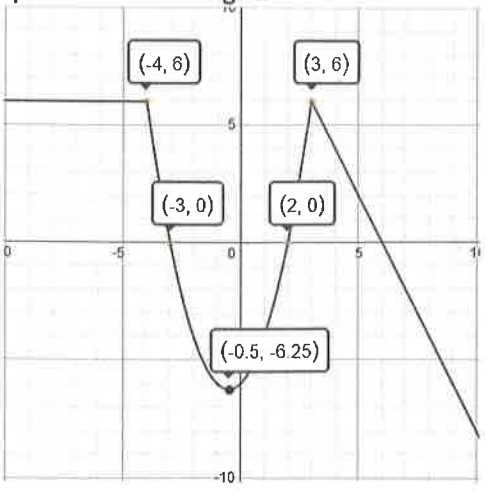

$D:(-5,-1)$


$D:(-\infty,-3]\cup(-1,\infty)$

Name: Unit 5 Test: Part 2

Write the correct letter in the box to the right of the question.

Use the following graph to answer the questions to the right.



1. Increasing interval

a.(-0.5,4)	b.(-0.5,3)	c.(-6.25,6)	d.[-0.5,6)	b

2. Decreasing interval

a.$(6,-6.25)(6,\infty)$	b.$(-4,-0.5)$	c.$(-4,-0.5) \cup (3,\infty)$	d. $(3,-0.5)$	c

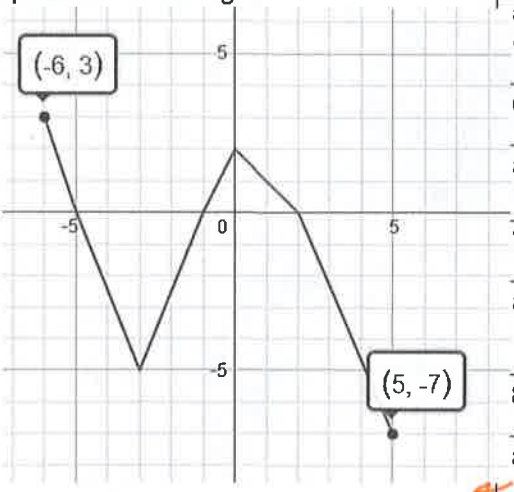
3. Constant interval

a.$(-\infty,-4)$	b. $[-\infty,6]$	c.$(-3,2)$	d.$(-4,3)$	a

4.End Behavior

a. $x \to -\infty, y \to \infty$ $x \to \infty, y \to -\infty$	b. $x \to -\infty, y \to -\infty$ $x \to \infty, y \to \infty$	c. $x \to -4, y \to \infty$ $x \to \infty, y \to -\infty$	d. $x \to -\infty, y \to 6$ $x \to \infty, y \to -\infty$	d.

Use the following graph to answer the questions to the right.



5. x-interpt(s) as ordered pairs.

a. $(-5,0),(-1,0),(2,0)$	b. $(-5,-1) \cup (0,2)$	c. $\{-5,-1,2\}$	d. $(0,-5),(0,-1)$ $,(0,2),(0,2)$	a.

6. y-intercept as ordered pairs.

a. $(0,2)$	b. $(2,0) \cup (0,2)$	c. $[0,2]$	d. $(2,0)$	a.

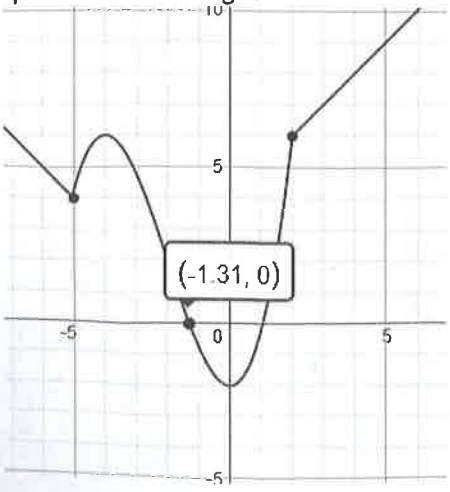
7. Positive interval

a. $(3,0) \cup (0,2)$	B. $[-6,-5] \cup (-1,2)$	c. $[-6,-5)$ $\cup (-1,2)$	d. $(0,5)$	c.

8.Negative interval

a. $(-5,-1) \cup (2,5]$	b. $(-5,-3) \cup (2,5]$	c. $(-5,-1)$	d. $(2,-7]$	a.

Use the following graph to answer the questions to the right.



9.Increasing interval

a. $(-\infty,4) \cup (2,6)$	b. $(-5,-4) \cup (0,\infty)$	c. $(-5,-1.31)$ $\cup (1,\infty)$	d. $(-5,-4)$	b.

10. Decreasing interval

a. $(\infty,4) \cup (6,-2)$	b. $(-4,0)$	c. $(-\infty,-1) \cup (2,3)$	d. $(-\infty,-5) \cup (-4,0)$	d.

11. Positive Interval

a. $(-\infty,0) \cup (0,\infty)$	b. $(-\infty,-1.31]$ $\cup [1,\infty)$	c. $(-\infty,-1.31)$ $\cup (1,\infty)$	d. $(0,\infty)$	c.

12. Negative Interval

a. $(-1.31,1)$	b. $\{0,-2,0\}$	c. $\{0,-2]$	d. $(-\infty,0)$	a.

Name:

Unit 5 Test: Part 2

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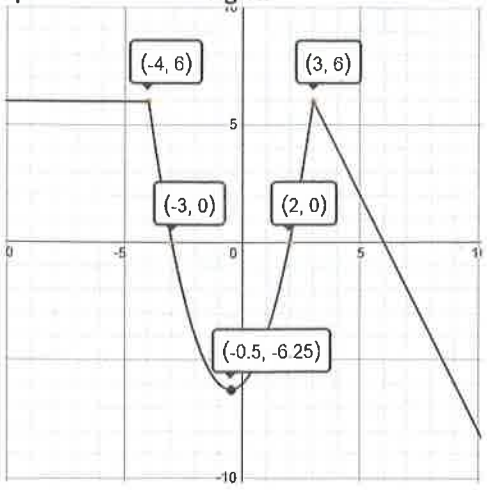

1. Increasing interval

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2. Decreasing interval

a.$(6,-6.25)(6,\infty)$	b.$(-4,-0.5)$	c.$(-4,-0.5)\cup(3,\infty)$	d. $(3,-0.5)$	c

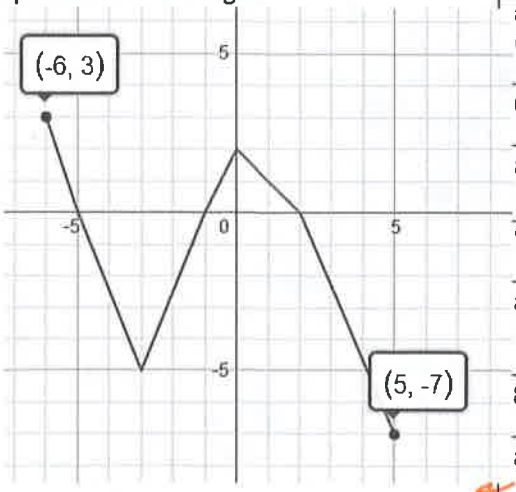
3. Constant interval

a.$(-\infty,-4)$	b. $[-\infty,6]$	c.$(-3,2)$	d.$(-4,3)$	a

4.End Behavior

a. $x\to-\infty, y\to\infty$ $x\to\infty, y\to-\infty$	b. $x\to-\infty, y\to-\infty$ $x\to\infty, y\to\infty$	c. $x\to-4, y\to\infty$ $x\to\infty, y\to-\infty$	d. $x\to-\infty, y\to 6$ $x\to\infty, y\to-\infty$	d.

Use the following graph to answer the questions to the right.



5. x-interpt(s) as ordered pairs.

a. $(-5,0),(-1,0),(2,0)$	b. $(-5,-1)\cup(0,2)$	c. $\{-5,-1,2\}$	d. $(0,-5),(0,-1)$ $,(0,2),(0,2)$	a.

6. y-intercept as ordered pairs.

a. $(0,2)$	b. $(2,0)\cup(0,2)$	c. $[0,2]$	d. $(2,0)$	a.

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a. $(3,0)\cup(0,2)$	B. $[-6,-5]\cup(-1,2)$	c. $[-6,-5)$ $\cup(-1,2)$	d. $(0,5)$	c.

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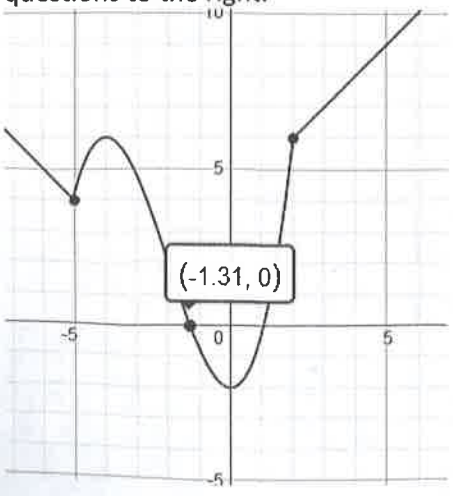


9.Increasing interval

a. $(-\infty,4)\cup(2,6)$	b. $(-5,-4)\cup(0,\infty)$	c. $(-5,-1.31)$ $\cup(1,\infty)$	d. $(-5,-4)$	b.

10. Decreasing interval

a. $(\infty,4)\cup(6,-2)$	b. $(-4,0)$	c. $(-\infty,-1)\cup(2,3)$	d. $(-\infty,-5)\cup(-4,0)$	d.

11. Positive Interval

a. $(-\infty,0)\cup(0,\infty)$	b. $(-\infty,-1.31]$ $\cup[1,\infty)$	c. $(-\infty,-1.31)$ $\cup(1,\infty)$	d. $(0,\infty)$	c.

12. Negative Interval

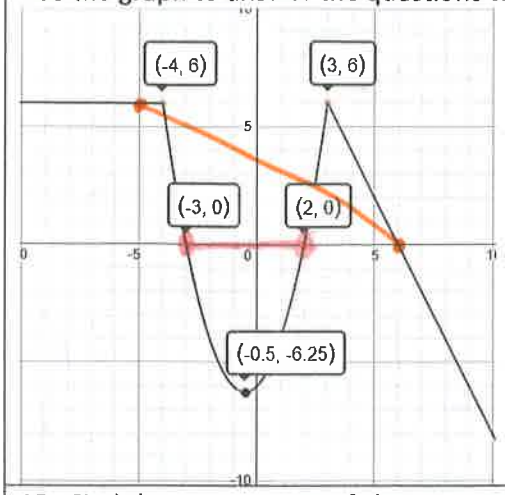
a. $(-1.31,1)$	b. $\{0,-2,0\}$	c. $\{0,-2]$	d. $(-\infty,0)$	a.

Name:

Unit 5 Test: Part 2

Show your work on the following questions.

Use the graph to answer the questions to the right.



13. Find the average rate of change over the interval (-5,6).

(-5,6) (6,0)

$\Delta x = 11$ $\Delta y = -6$ $m = -6/11$

x	-5	6	$\Delta x = 11$
y	6	0	$\Delta y = -6$

14. Find the average rate of change over the interval (-3,2).

(3,0) (2,0) $\frac{\Delta y}{\Delta x} = m = 0$

x	3	2	$\Delta x = 5$
y	0	0	$\Delta y = 0$

15. Find the average rate of change over the interval (-3,5).

x	h(x)
-5	81
-3	33
-1	9
1	9
3	33
5	81

8 48

$\frac{\Delta y}{\Delta x} = \frac{48}{8} = 6$

16. Find the average rate of change over the interval (-2,8) for the function $g(x) = -2x^2 - 5x + 1$

(-2,3) (8,-167)

$\frac{\Delta y}{\Delta x} = \frac{-170}{10} = -17$

x	-2	8	$\Delta x = 10$
y	3	-167	$\Delta y = -170$

17. Which of the functions has the minimum with the greater value. Explain your solution.

$f(x) = (3x - 4)(2x - 5)$ (2,-2)

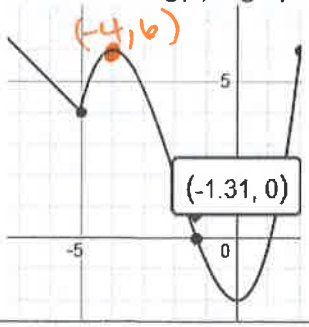
x	-5	-4	-3	-2	-1	0
h(x)	-4	-5	-4	-1	4	11

f(x) has a greater minimum value because the y-value of -2 > the y-value of -5.

18. Which of the functions has the leftmost maximum? Explain your solution.

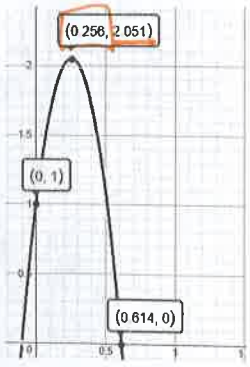
$k(x) = -(x + 4)^2 - 2$ (-4,-4)

The function g(x) is graphed below.



g(x) has leftmost max. because the x-value of -4 is farther to the left than the x-value of -2.

The function *j(x)* is graphed below.



The function *f(x)* is modeled below.

x	0	0.256	0.453	0.683
f(x)	0.5	2.216	1.53	0

Jackson and Flint are shooting arrows straight into the air. Jackson's arrow flight path is modeled by the function *j(x)* and Flint's arrow path is modeled by the function *f(x)* to the right.

19. Whose arrow flew the highest?

Flint's

20. When Jackson's arrow was at its maximum height, was it higher or lower than Flints? By about how many feet.

lower by about 0.2