

Before we begin, are there any questions from last day's work?

Today's Learning Goal(s):

By the end of the class, I will be able to:

- a) consolidate understanding of domain and range.
- b) learn terminology of leading coefficient and end behaviour.

2.1.1: Match It!

Date: _____

Match each given function with the graph on the right-hand side.

1. C $y = 2x + 1$

2. H $y = x^2 - x - 6$

3. A $y = -x^2 + x + 6$

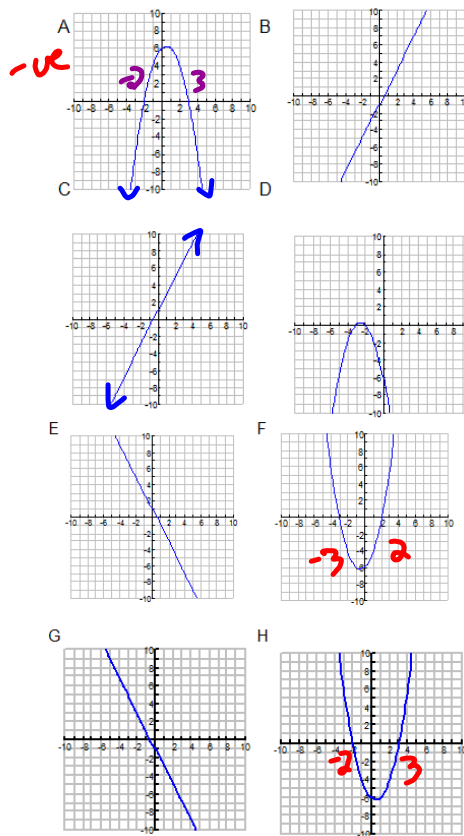
4. B $y = 2x - 1$

5. F $y = x^2 + x - 6$

6. G $y = -2x - 1$

7. D $y = -x^2 - 5x - 6$

8. E $y = -2x + 1$



2. $y = x^2 - x - 6$
 $0 = (x-3)(x+2)$

$x-3=0$ $x=-2$
 $x=3$ $x=-2$

3. $y = -x^2 + x + 6$
 $= -(x^2 - x - 6)$
 $= -(x-3)(x+2)$

Zeros: $x = 3, -2$

2.1.2: Linear and Quadratic Functions

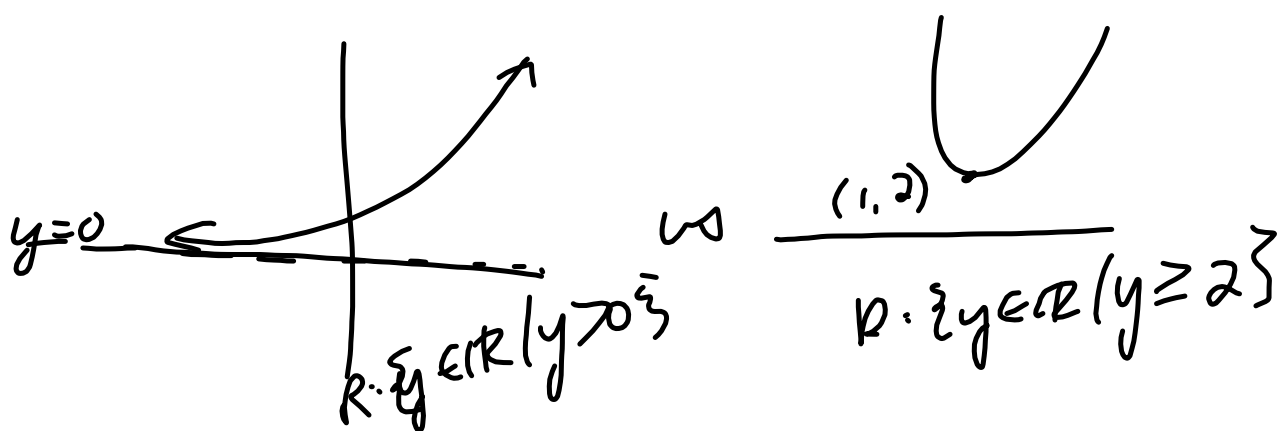
Date: _____

Function	Domain and Range	Degree	Leading Coefficient	End Behaviour
1. $y = \underline{2x+1}$	$\{x \in \mathbb{R}\}$ $\{y \in \mathbb{R}\}$	1	2	As $x \rightarrow \infty, y \rightarrow \infty$ As $x \rightarrow -\infty, y \rightarrow -\infty$
2. $y = \underline{x^2 - x - 6}$	$\{x \in \mathbb{R}\}$ $\{y \in \mathbb{R} / y \geq -6.25\}$	2	1	As $x \rightarrow \infty, y \rightarrow \infty$ As $x \rightarrow -\infty, y \rightarrow \infty$
3. $y = \underline{-x^2 + x + 6}$	$\{x \in \mathbb{R}\}$ $\{y \in \mathbb{R} / y \leq 6.25\}$	2	-1	As $x \rightarrow \infty, y \rightarrow -\infty$ As $x \rightarrow -\infty, y \rightarrow -\infty$
4. $y = \underline{2x - 1}$	$\{x \in \mathbb{R}\}$ $\{y \in \mathbb{R}\}$	1	2	As $x \rightarrow \infty, y \rightarrow \infty$ As $x \rightarrow -\infty, y \rightarrow -\infty$
5. $y = \underline{x^2 + x - 6}$	$\{x \in \mathbb{R}\}$ $\{y \in \mathbb{R} / y \geq -6\}$	2	1	As $x \rightarrow \infty, y \rightarrow \infty$ As $x \rightarrow -\infty, y \rightarrow \infty$
6. $y = \underline{-2x - 1}$	$\{x \in \mathbb{R}\}$ $\{y \in \mathbb{R}\}$	1	-2	As $x \rightarrow \infty, y \rightarrow -\infty$ As $x \rightarrow -\infty, y \rightarrow \infty$
7. $y = \underline{-x^2 - 5x - 6}$	$\{x \in \mathbb{R}\}$ $\{y \in \mathbb{R} / y \leq 0.25\}$	2	-1	As $x \rightarrow \infty, y \rightarrow -\infty$ As $x \rightarrow -\infty, y \rightarrow -\infty$
8. $y = \underline{-2x + 1}$	$\{x \in \mathbb{R}\}$ $\{y \in \mathbb{R}\}$	1	-2	As $x \rightarrow \infty, y \rightarrow -\infty$ As $x \rightarrow -\infty, y \rightarrow \infty$

Choices

- As $x \rightarrow \infty, y \rightarrow \infty$
- As $x \rightarrow \infty, y \rightarrow -\infty$
- As $x \rightarrow -\infty, y \rightarrow \infty$
- As $x \rightarrow -\infty, y \rightarrow -\infty$
- $\{x \in \mathbb{R}\}$
- $\{y \in \mathbb{R}\}$
- $\{x \in \mathbb{R} / \quad \}$
- $\{y \in \mathbb{R} / \quad \}$

As $x \rightarrow -\infty, y \rightarrow -\infty$



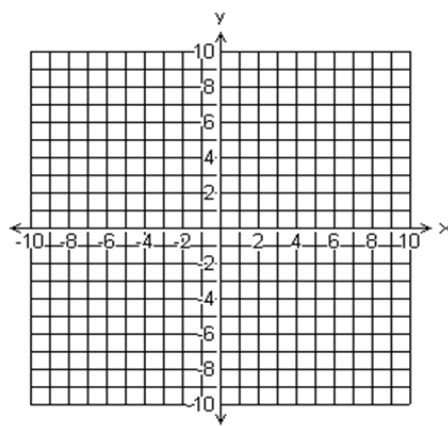
2.1.3: Linear and Quadratic Functions – Practice

Date: _____

For each of the given functions, sketch the graph of the relation, creating a table of values if necessary. Use the graph and the equation to fill in the table relating to each graph.

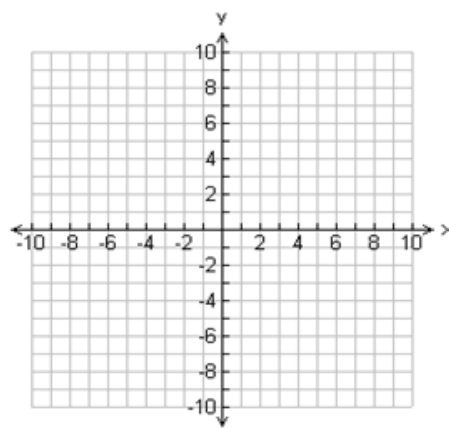
1. $y = -3x + 2$

Domain	
Range	
Degree	
Sign of Leading Coefficient	
End Behaviour	
Is the relation a function?	



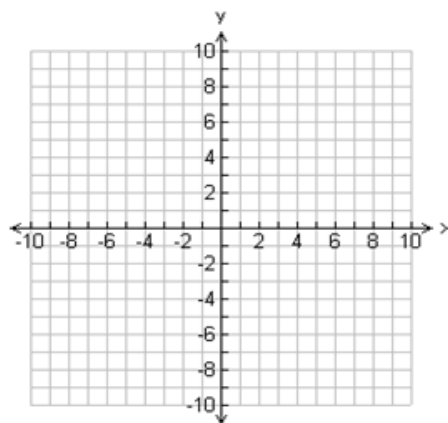
2. $y = -x^2 - 5$

Domain	
Range	
Degree	
Sign of Leading Coefficient	
End Behaviour	
Is the relation a function?	



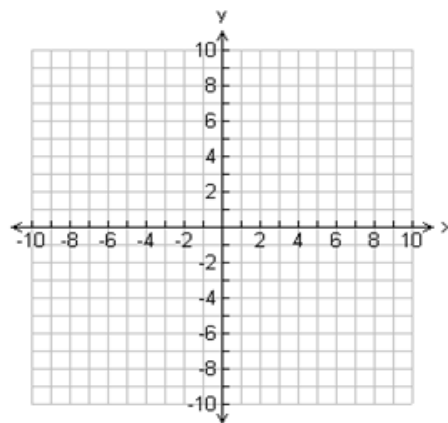
3. $y = \frac{1}{2}x + 4$

Domain	
Range	
Degree	
Sign of Leading Coefficient	
End Behaviour	
Is the relation a function?	



4. $y = x^2 - 6x + 9$

Domain	
Range	
Degree	
Sign of Leading Coefficient	
End Behaviour	
Is the relation a function?	



5. Is it possible to graph a line of the form $y = mx + b$ that will not result in a function? Explain your reasoning.

6. Is it possible to graph a quadratic relation of the form $y = ax^2 + bx + c$ that will not result in a function? Explain your reasoning.