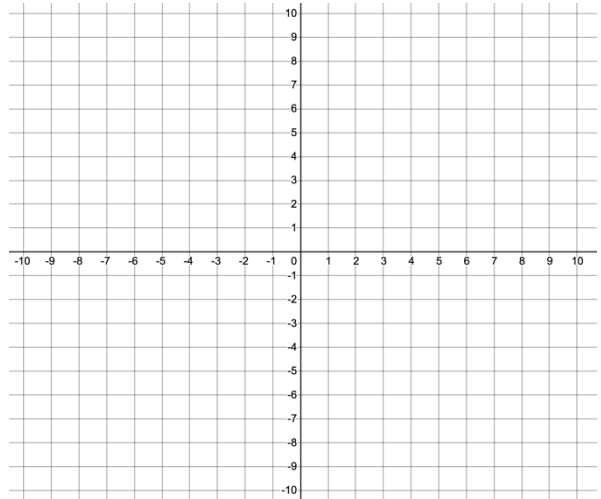


Section 1: Properties of Quadratics

The simplest form a _____ relationship is $y = x$

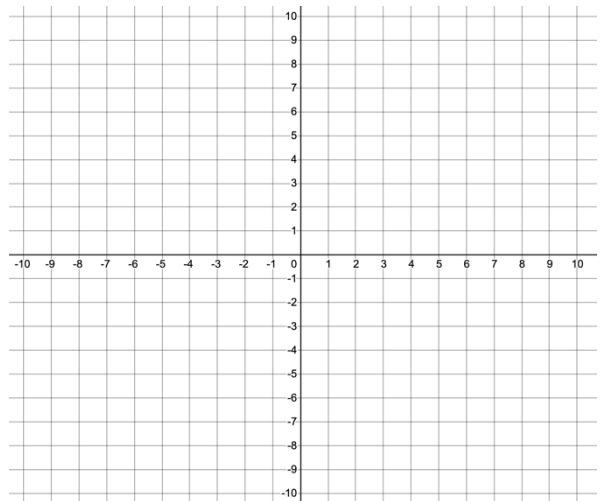
x	y	1 st Differences
-3		
-2		
-1		
0		
1		
2		
3		



Notice that the column of 1st finite differences is _____ for linear relationships.

The simplest form a _____ relationship is $y = x^2$

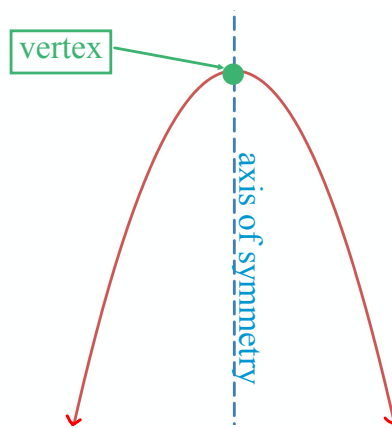
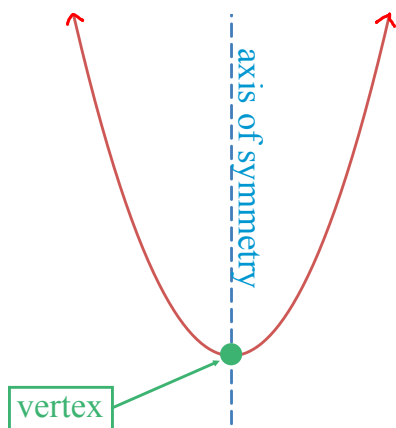
x	y	1 st Differences	2 nd Differences
-3			
-2			
-1			
0			
1			
2			
3			



Notice that the column of 2nd column of finite differences is _____ for quadratic relationships.

Properties of Quadratics

- The shape of the graph of a quadratic relation is called a _____
- A parabola has a maximum or minimum point called a _____
- If the parabola opens up, the vertex is a _____ point
- If the parabola opens down, the vertex is a _____ point
- Parabolas are symmetrical
- The vertical line that passes through the vertex is the _____

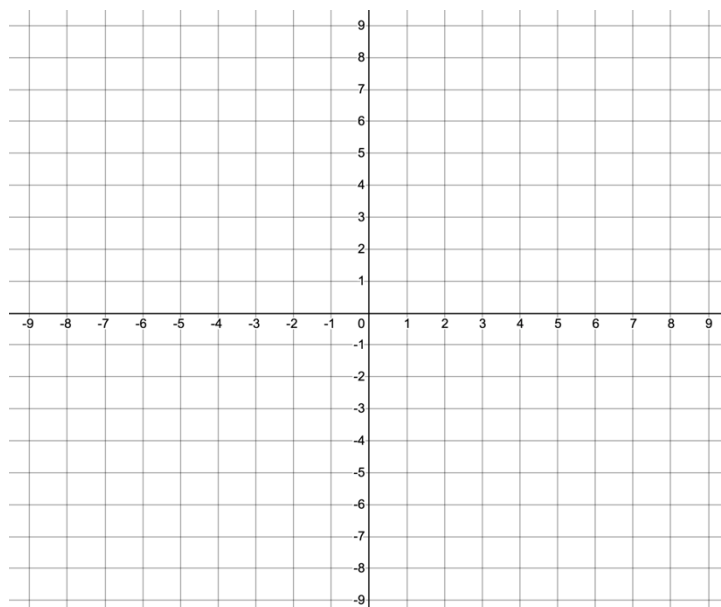


Section 2: Quadratics in Standard Form

The standard form of a quadratic equation is

Example 1: For the function $y = x^2 + 2x + 1$, sketch a graph by completing the given table of values, then state the vertex and axis of symmetry.

x	y
-4	
-3	
-2	
-1	
0	
1	
2	



Properties of Quadratics from the Standard Form Equation $\rightarrow y = ax^2 + bx + c$

- If $a > 0$, the parabola opens _____
- If $a < 0$, the parabola opens _____
- The _____ is at $(0, c)$

Example 2: State the direction of opening and y-intercept of the given quadratic, then make a table of values and sketch the graph to verify.

a) $y = -3x^2 + 2$

b) $y = 2x^2 - 8x + 3$

x	y

x	y

