

Starter

10 JAN 2018

$$x \cdot x \quad x \cdot x \cdot x \cdot x$$

1) Simplify: $3x^2 * 8x^4$

$$24x^6$$

2) Given the quadratic equation $y = -2x^2 + 4$, determine if the graph opens up or down and if it has a minimum or maximum point. Do not use the calculator.

$\downarrow -2$ Down maximum pt.

$$y = x^2 \quad \text{the parent function}$$

$$y = -7x^2 \quad \text{skinnier}$$

$$y = \frac{1}{7}x^2 \quad \text{wider}$$

$$y = -7x^2$$

x	y
-3	-63
-2	-28
-1	-7
0	0 MAX
1	-7
2	-28
3	-63

- ① $y =$
- ② 2nd Window
Indpt → ASK
- ③ 2nd graph

Changing the value of the constant "C"

a.) $f(x) = x^2$ (the parent function)

b.) $y = x^2 + 3$

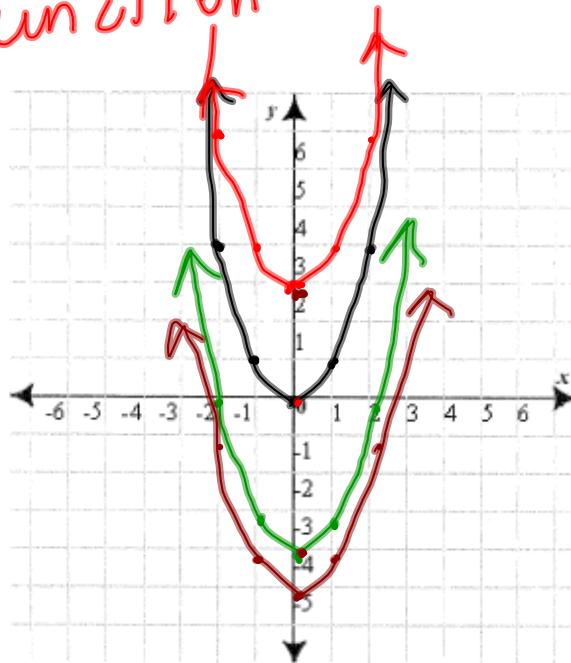
x	y
-2	7
-1	4
0	3
1	4
2	7

c.) $y = x^2 - 4$

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

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

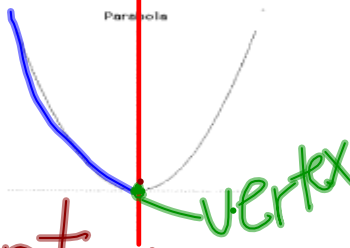
x	y
-2	-5
-1	-4
0	-5
1	-4
2	-5



Effects of changing the constant:

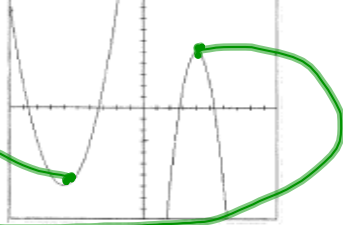
+C moves it up
-C moves it down

Axis of Symmetry: *the line that separates the graph into 2 ~ parts*



Vertex: *the highest or lowest pt. on axis*

- If parabola opens UPWARD, the VERTEX is the *MINIMUM* point or lowest point
- If parabola opens DOWNWARD, the VERTEX is the *MAXIMUM* point or highest point.

Minimum Point: 

Maximum Point:

congruent 12

Ex 2: Tell whether each parabola opens up or down and whether the vertex is a maximum or minimum

a. $y = 4x^2$ b. $y = -3x^2 + 2$ c. $y = 2x - x^2$

Graph the following functions with your graphing calculator, sketch the graphs below and identify the domain and range of each function.

1. $y = 4x^2 - 3$

2. $y = -3x^2$

3. $y = x^2 + 6$

4. $y = -\frac{1}{4}x^2 - 2$