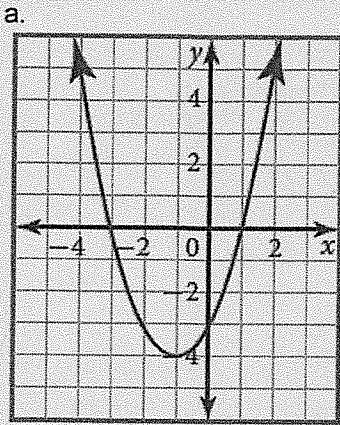


DAY 2 - Vocabulary

1. Identify all the key features of the following graphs



Max or Min ?

Min

Optimal Value

$y = -4$

Axis of symm

$x = -1$

Vertex

$(-1, -4)$

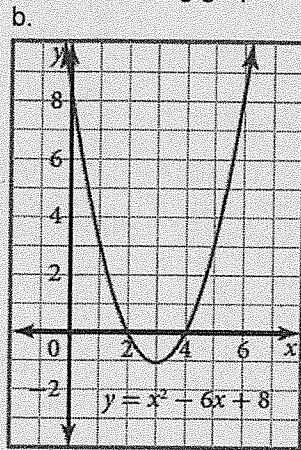
Zeros/x-int

$(-3, 0)$ $(1, 0)$

Y-intercept

$(0, -3)$

$y\text{-int} = -3$



Max or Min ?

Min

Optimal Value

$y = -1$

Axis of symm

$x = 3$

Vertex

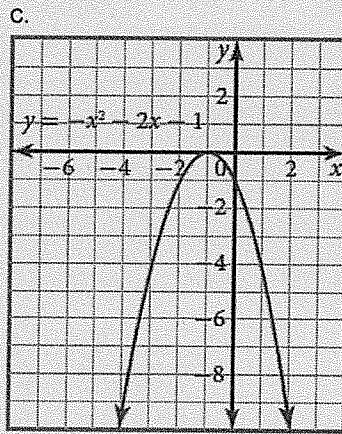
$(3, -1)$

Zeros/x-int

$(2, 0)$ $(4, 0)$

Y-intercept

$(0, 8)$



Max or Min ?

MAX

Optimal Value

$y = 0$

Axis of symm

$x = -1$

Vertex

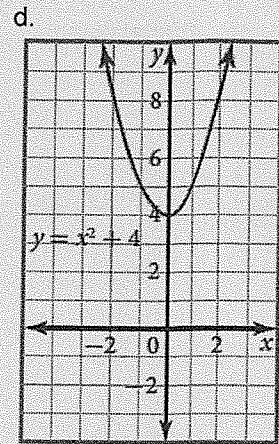
$(-1, 0)$

Zeros/x-int

$(-1, 0)$

Y-intercept

$(0, -1)$



Max or Min ?

Min

Optimal Value

$y = 4$

Axis of symm

$x = 0$

Vertex

$(0, 4)$

Zeros/x-int

none

Y-intercept

$(0, 4)$

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2. Is each relation linear or quadratic or neither?

a) $y = x^2 + 1$

quad

b) $y = 2x + 1$

linear

c) $y = 3x^2$

quad

d)

x	y
-3	-18
-2	-13
-1	-8
0	-3
1	2
2	7
3	12

+11
+11
+5
+5
+5
+5
+5

Linear

e)

x	y
0	8
1	6.5
2	6
3	6.5
4	8
5	10.5
6	14
7	18.5

Δx
+1
+1
+1
+1
+1
+1
+1

Δy
-1.5
-0.5
+0.5
+1.5
+2.5
+3.5
+4.5

ΔΔy
) +1
) +1
) +1
) +1
) +1
) +1
) +1

quad.

3. Use the table of values to sketch each of the following.

a.

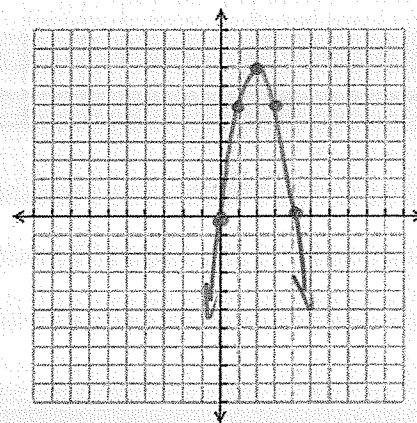
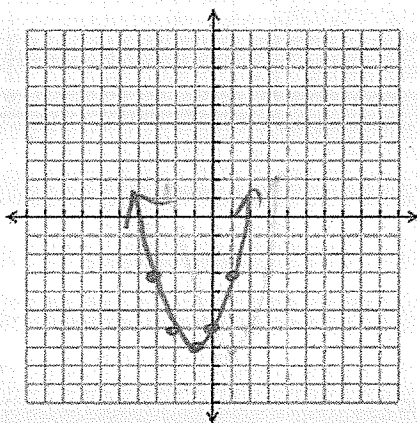
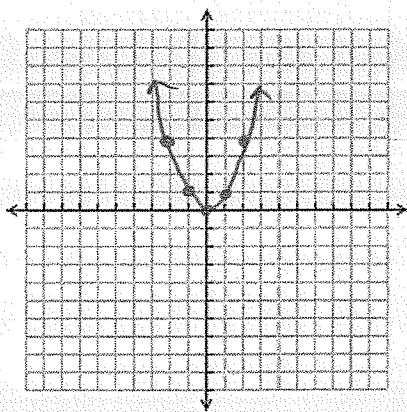
x	y = x ²	
2	(2) ² = 4	∴ (2, 4)
1	1 ² = 1	(1, 1)
0	0 ² = 0	(0, 0)
-1	(-1) ² = 1	(-1, 1)
-2	(-2) ² = 4	(-2, 4)

c.

x	y = x ² + 2x - 6
1	1 ² + 2(1) - 6 = 1 + 2 - 6 = -3
0	0 ² + 2(0) - 6 = -6
-1	(-1) ² + 2(-1) - 6 = 1 - 2 - 6 = -7
-2	(-2) ² + 2(-2) - 6 = 4 - 4 - 6 = -6
-3	(-3) ² + 2(-3) - 6 = 9 - 6 - 6 = -3

d.

x	y = -2x(x - 4)
0	y = -2(0)(0 - 4) = 0(-4) = 0
1	-2(1)(1 - 4) = -2(-3) = 6
2	-2(2)(2 - 4) = -4(-2) = 8
3	-2(3)(3 - 4) = -6(-1) = 6
4	-2(4)(4 - 4) = -8(0) = 0



4. Identify all the key features for the above parabolas

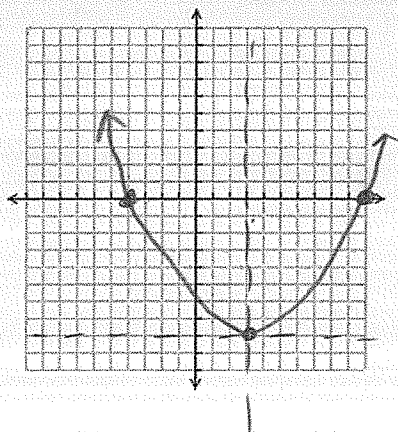
Max or Min? **MIN**
 Optimal Value **y = 0**
 Axis of symm **x = 0**
 Vertex **(0, 0)**
 Zeros/x-int **(0, 0)**
 Y-intercept **(0, 0)**

Max or Min? **MIN**
 Optimal Value **y = -7**
 Axis of symm **x = -1**
 Vertex **(-1, -7)**
 Zeros/x-int **(-3, 2, 0) (-1, 8, 0)**
 Y-intercept **(0, -6)**

Max or Min? **MAX**
 Optimal Value **y = 8**
 Axis of symm **x = 2**
 Vertex **(2, 8)**
 Zeros/x-int **(0, 0) (4, 0)**
 Y-intercept **(0, 0)**

5. Use the information provided to sketch the parabolas

a. optimal value y = -8
 zeros at (-4, 0) and (10, 0)



b. axis of symm x = 4
 vertex (4, 3)
 zero (0, 0)
 y-int 0

