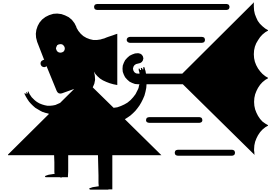


Algebra 2 Trig C

5.2 Notes



Name _____

Date _____ Hour _____

Key

Part I: Does the parabola point up or down?

1) $y = -x^2 - 3x + 5$ *down*

2) $y = x^2$ *up*

3) $y = -5x^2 - 3x$ *down*

4) $y = -5x^2 - 3x + 5$ *down*

5) $y = 3x + 5x^2$ *up*

6) $y = -10x^2 - 3.8x + 500$ *down*

Part II: Find the domain and range.

7) Vertex: $(0, 0)$

8) Vertex: $(-3, -2)$

9) Vertex: $(5, 5)$

(x) Domain: *all real #'s*

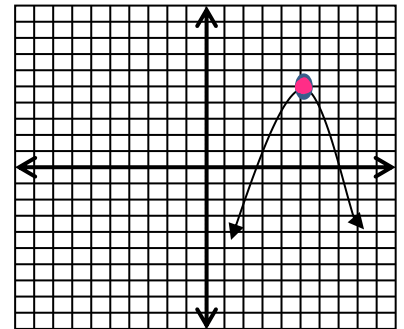
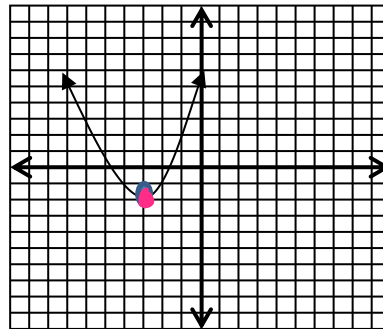
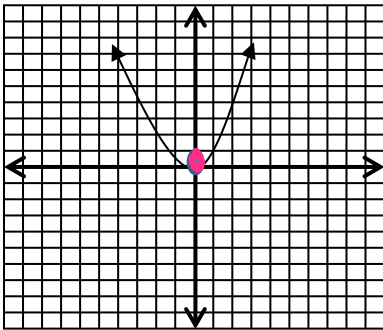
(x) Domain: *all real #'s*

(x) Domain: *all real #'s*

(y) Range: $y \geq 0$

(y) Range: $y \geq -2$

(y) Range: $y \leq 5$



Part II: Find the vertex using the formula.

Vertex Formula: $x = -\frac{b}{2a}$, plug in to find y

$a=2$ $b=-8$ $c=-16$

$a=-2$ $b=4$ $c=-1$

$a=1$ $b=14$ $c=33$

1) $y = 2x^2 - 8x - 16$

2) $y = -2x^2 + 4x - 1$

3) $y = x^2 + 14x + 33$

① find x-value

① $x = \frac{-4}{2(-2)} = \frac{-4}{-4} = 1$

① $x = \frac{-14}{2(1)} = -7$

$x = \frac{-(-8)}{2(2)} = \frac{8}{4} = 2$

② $y = -2(1)^2 + 4(1) - 1$

② $y = (-7)^2 + 14(-7) + 33$

$y = 1$

$y = -16$

③ vertex = $(1, 1)$

③ vertex = $(-7, -16)$

② plug x in to find y

$y = 2(2)^2 - 8(2) - 16$
 $y = -24$

③ vertex = $(2, -24)$

Part III: Graph each parabola

1) $y = -2x^2 + 4x - 1$

Vertex: $(1, 1)$ max/min?
 Use calc or $x = \frac{-b}{2a}$

Direction: down

Axis of symmetry: $x = 1$
 * x-value of vertex

Domain: all real #'s

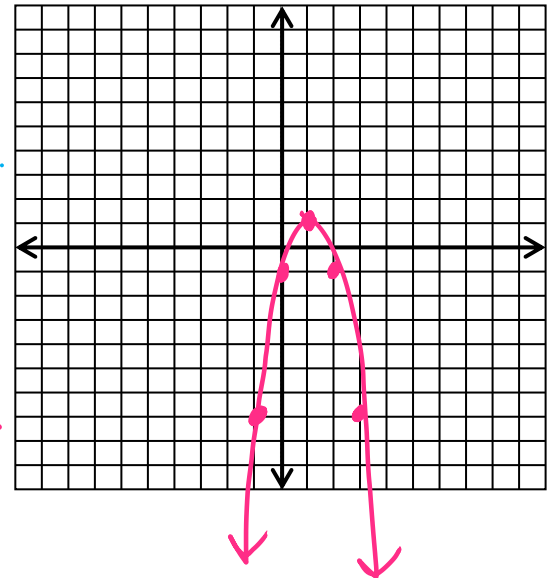
y-intercept: $(0, -1)$
 * c-value

Range: $y \leq 1$
 * y-value of vertex

Table:

X	y
-1	-7
0	-1
1	1
2	-1
3	-7

← vertex



2) $y = 4x^2$

Vertex: $(0, 0)$ max/min?

Direction: up

Axis of symmetry: $x = 0$

Domain: all real #'s

y-intercept: $(0, 0)$

Range: $y \geq 0$

Table:

X	y
-2	16
-1	4
0	0
1	4
2	16

→ vertex

