

4.1 Graphing Review

1. Explain how to find the vertex in standard form: $y = ax^2 + bx + c$

$x = \frac{-b}{2a}$, then plug x into calc to find y

2. Explain how to find the vertex in factored form: $y = a(x - m)(x - n)$

1. Find x -ints
2. Add x -ints + divide by 2 to find x of vertex
3. plug x into calc to find y

3. Explain how to find the vertex in vertex form: $y = a(x - h)^2 + k$

Coop by (c)

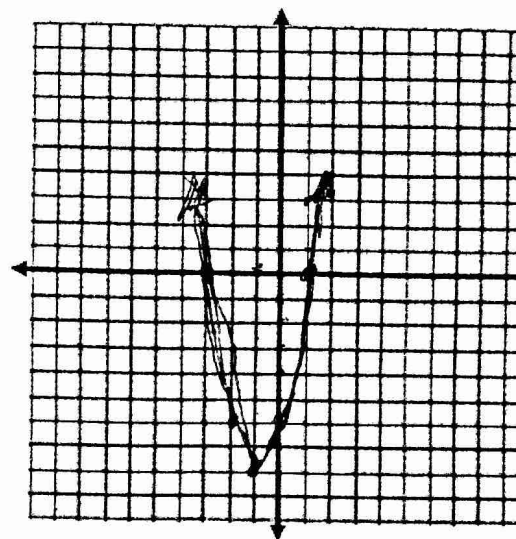
4. How do you find the y -intercept of a graph?

set $x=0$ and find y

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

- A) Opens: UP
- B) Vertex: $(-1, -8)$ Min or Max?
- C) Axis of Symmetry: $x = -1$
- D) X-intercepts? $(1, 0)$ $(-3, 0)$
- E) y -intercept? $(0, -6)$
- F) Domain: \mathbb{R} Range: $y \geq -8$
- G) ~~How many solutions?~~ List them: _____

x	y
-3	0
-2	6
-1	-8
0	6
1	0



6. $y = -(x - 3)(x + 1)$

A) Opens: down

B) Vertex: (1, 4) Min or Max?

C) Axis of Symmetry: $x = 1$

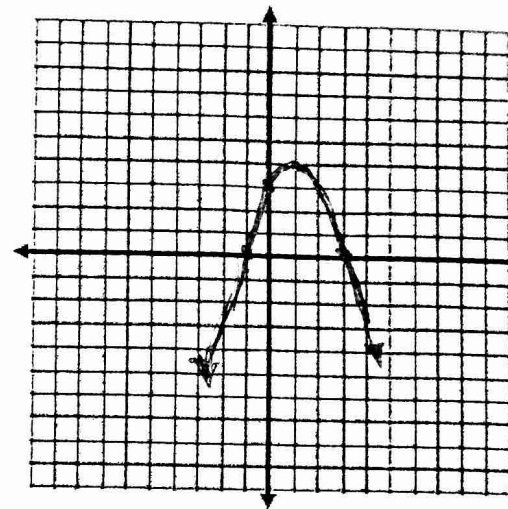
D) X-intercepts? $x = 3$ $x = -1$ (3,0)(-1,0)

E) y-intercept? (0, 3)

F) Domain: \mathbb{R} 's Range: ~~$y \leq 4$~~

G) How many solutions? _____ List them: _____

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



7. $y = \frac{1}{2}(x + 3)^2 + 2$

A) Opens: up

B) Vertex: -3, 2 Min or Max?

C) Axis of Symmetry: $x = -3$

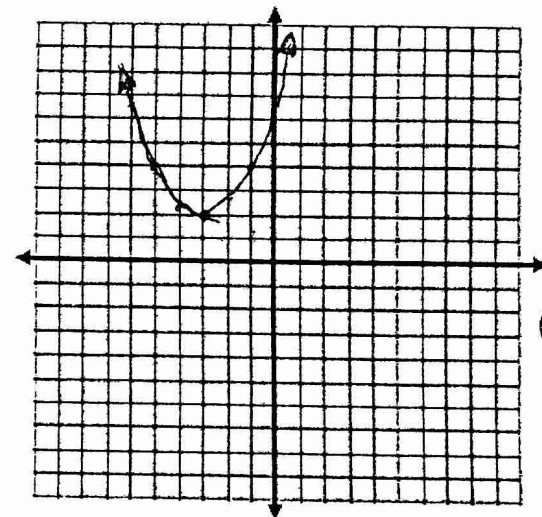
D) X-intercepts? None

E) y-intercept? $y = 6.5$

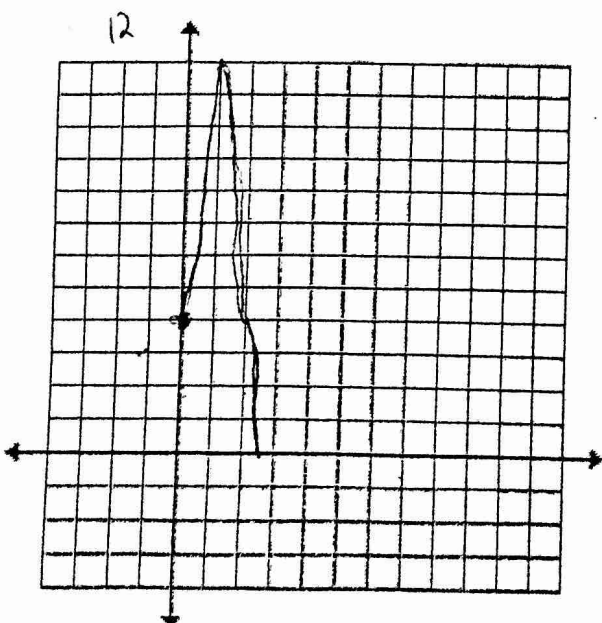
F) Domain: \mathbb{R} 's Range: $y \geq 2$

G) How many solutions? _____ List them: _____

x	y
-5	4
-4	2.5
-3	2
-2	2.5
-1	4



8. While playing basketball this weekend Frank shoots an air-ball. The height h in feet of the ball is given by $h(x) = -16(t-1)^2 + 24$ where t is time in seconds.



a) How long will it take the ball to hit the ground? ≈ 3.2 second

b) What is the maximum height of the ball? 24

c) What are the domain and range of the function? $x \geq 0$ $x \leq 2.3$
 $y \geq 0$ $y \leq 24$

d) How does the situation restrict the domain and range?

