

Ch 2A Practice Quiz

Name: ANSWERS

Graph the following and identify the vertex, axis of symmetry, domain & range

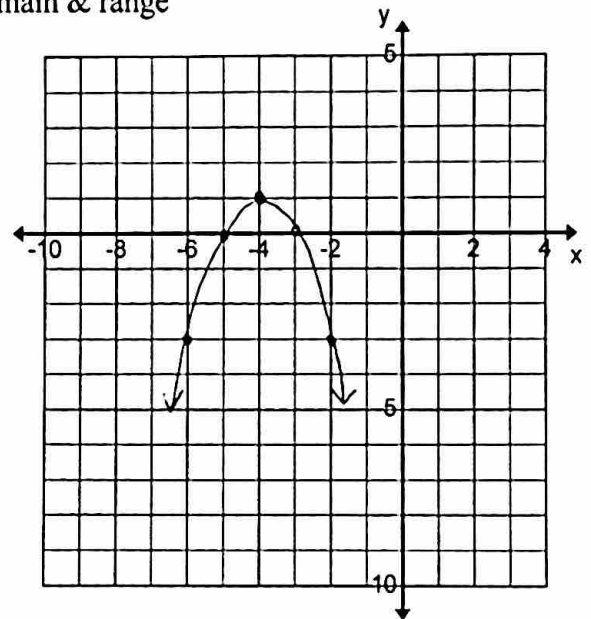
1. $y = -(x+4)^2 + 1$

Vertex: $(-4, 1)$

AoS: $x = -4$

Domain: $(-\infty, \infty)$

Range: $(-\infty, 1]$



Use the equation to answer the following questions:

2. $y = 0.5(x-5)^2 + 17$

Vertex: $(5, 17)$

Axis of Symmetry: $x = 5$

Max or Min min

Domain: $(-\infty, \infty)$

Range: $[17, \infty)$

3. Find the equation of the quadratic in vertex form and standard form that has a vertex at $(1, -4)$ & goes through the point $(-2, -1)$.

$$y = a(x-1)^2 - 4$$

$$-1 = a(-2-1)^2 - 4$$

$$3 = 9a$$

$$\frac{1}{3} = a$$

$$y = \frac{1}{3}(x-1)^2 - 4$$

$$y = \frac{1}{3}(x-1)(x-1) - 4$$

$$y = \frac{1}{3}(x^2 - x - x + 1) - 4$$

$$y = \frac{1}{3}(x^2 - 2x + 1) - 4$$

$$y = \frac{1}{3}x^2 - \frac{2}{3}x + \frac{1}{3} - 4$$

$$y = \frac{1}{3}x^2 - \frac{2}{3}x - \frac{11}{3}$$

4. For the following equation identify the vertex, y-intercept and graph the function.

$$y = -\frac{1}{2}x^2 - 2x + 7$$

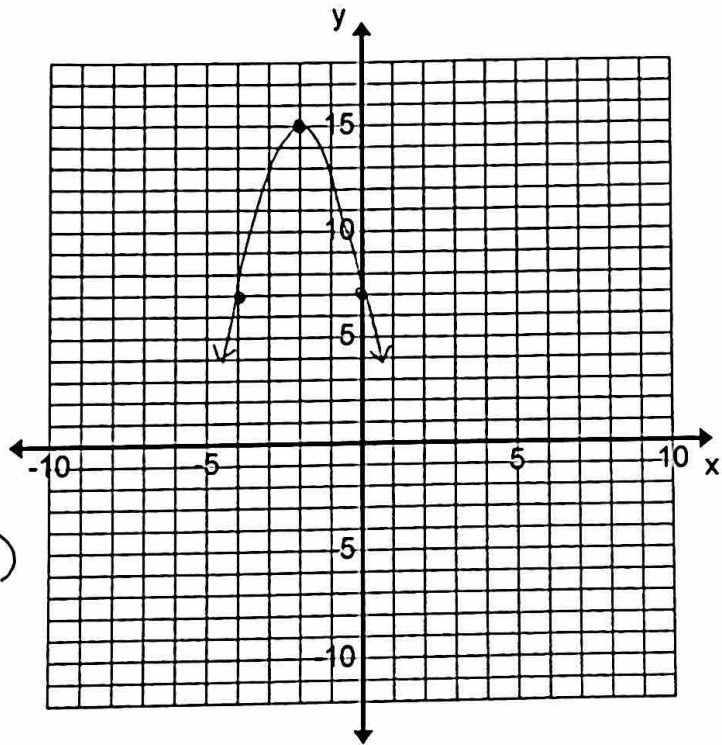
Vertex: $x = \frac{-b}{2a}$

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

$$y = -\frac{1}{2}(\frac{4}{4}) + \frac{16}{4} + 7$$

$$y = 15 \quad (-2, 15)$$

y-intercept: $(0, 7)$



5. Molly Moon's Ice Cream's profit equation is $f(x) = -5x^2 + 240x - 1000$.

a. How many ice scoops would they need to sell to make a maximum profit?

$$x = \frac{-240}{2(-5)} = \boxed{24 \text{ SCOOPS}}$$

b. What is their maximum profit?

$$y = -5(24)^2 + 240(24) - 1000$$

$$y = \boxed{\$1880}$$