# Homework Review - 10.8

What is the eq. of a line that goes through the points $(-1, -2)$ and $(2, 7)$?

(15)

| x | -2 | -1 | 0 | 1 | 2 |
|---|----|----|---|---|---|
| y | -5 | -2 | 1 | 4 | 7 |

3  3  3  3   **linear**

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-2 - 7}{-1 - 2} = \frac{-9}{-3} = 3$$

$$y = 3x + b$$

$$1 = 3(0) + b$$

$$1 = b$$

$$\boxed{y = 3x + 1}$$

⑦  $(-5,-1)(-3,0)(-1,1)(1,2)(3,3)$   linear

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3-2}{3-1} = \frac{1}{2}$$

$$y = \frac{1}{2}x + b \qquad b = \frac{3}{2}$$

$$2 = \frac{1}{2}(1) + b \qquad y = \frac{1}{2}x + \frac{3}{2}$$

$$2 = \frac{1}{2} + b$$

$$-\frac{1}{2} \quad -\frac{1}{2}$$

(17)

| $x$ | -1 | 0 | 1 | 2 | 3 |
|-----|-----|-----|-----|-----|-----|
| $y$ | 16 | 4 | 1 | $\frac{1}{4}$ | $\frac{1}{16}$ |

-12   -3   $-\frac{3}{4}$

9    $2\frac{1}{4}$

**exponential**

$$y = 4\left(\frac{1}{4}\right)^x$$

$$y = ab^x$$

$$4 = ab^0$$
$$4 = a \cdot 1$$
$$4 = a$$

$$y = 4b^x$$

$$1 = 4b^1$$
$$\frac{1}{4} = \frac{4b}{4}$$
$$b = \frac{1}{4}$$

**3**

$$y = -3x^2 - 2x - 5 \quad \text{(graph)}$$

Review Questions:

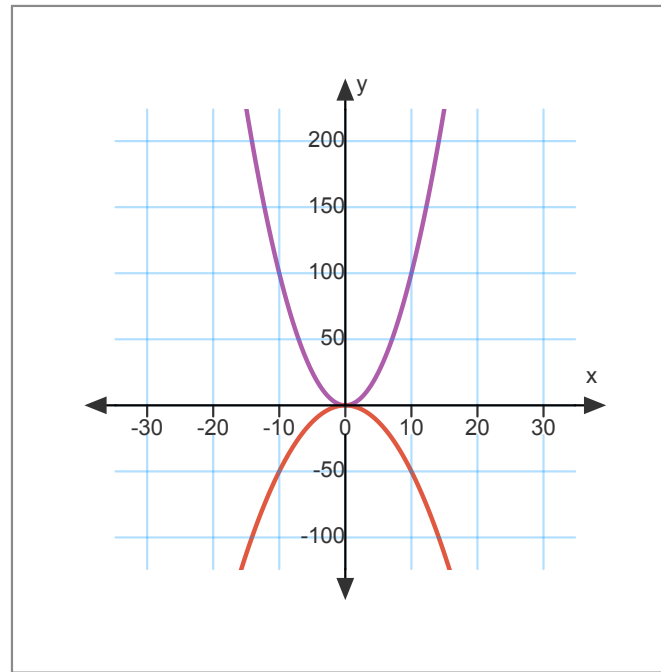p. 696, 5-19 odd, 25-29 odd, 30, 37, 38
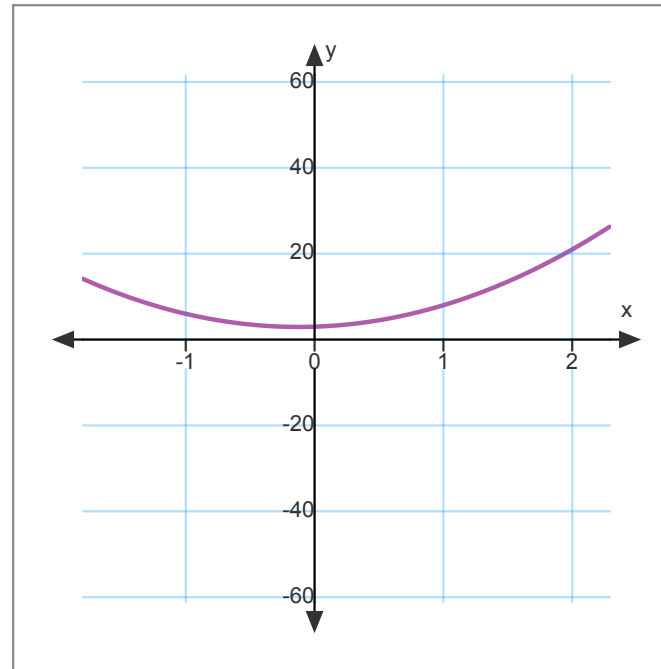p. 704, 1, 3

$$y = x^2$$

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

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

line of axis of symmetry

$$y = 4x^2 + x + 3$$

$$\left(-\frac{1}{8}, \frac{47}{48}\right)$$

$$3x^2 + 7 = 4$$
$$\underline{-7 \quad -7}$$
$$\frac{3x^2 = -3}{3}$$
$$\sqrt{x^2} = -1$$

$$x \quad no\ solution.$$

$$-x^2 + 8 = 7x$$
$$\phantom{-x^2 + 8 =} -7x \quad -7x$$

$$-x^2 - 7x + 8 = 0$$

$$x = \frac{-b}{2a} = \frac{7}{-2} = -\frac{7}{2}$$

$$y = -\left(\frac{7}{2}\right)^2 - 7\left(\frac{7}{2}\right) + 8$$

$$= -\frac{49}{4} + \frac{49}{2} + 8$$

$$= -\frac{49}{4} + \frac{98}{4} + \frac{32}{4}$$

$$= \frac{81}{4} = 20\frac{1}{4}$$

$$\left(-2\frac{1}{2}, 20\frac{1}{4}\right)$$

$$-(-1)^2 - 7(-1) + 8$$
$$-1 + 7 + 8 = 14$$
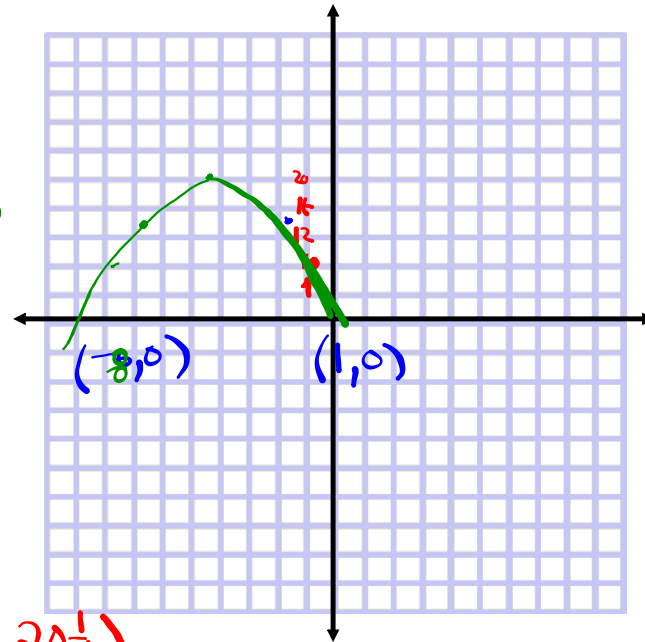
$$(-1, 14)$$

$$-(0)^2 - 7(0) + 8 = 8 \qquad (0, 8)$$

$$-(-8)^2 - 7(-8) + 8$$

$$-64 + 56 + 8 = 0 \checkmark \qquad -(1)^2 - 7(1) + 8$$
$$\phantom{-64 + 56 + 8 = 0 \checkmark \qquad} -1 - 7 + 8 = 0$$

$(-8, 0)$     $(1, 0)$

$$\frac{3(w-4)^2}{3} = \frac{5}{3}$$

$$(w-4)^2 = \frac{5}{3}$$

$$w-4 = \sqrt{\frac{5}{3}} \qquad\qquad w-4 = -\sqrt{\frac{5}{3}}$$

$$w-4 = 1.29 \qquad\qquad w-4 = -1.29$$

$$w = 5.29 \qquad\qquad w = 2.71$$

# Optional Study Questions:

p. 701, 1-5 odd, 11-23 odd, 24, p. 705 9, 11