

# HW 55

P266

AAT

3. quadratic, parabola

4. vertex

5. positive, negative

$$\begin{aligned} 43. \quad y &= a(x+1)^2 + 4 \\ 0 &= a(-3+1)^2 + 4 \\ -4 &= 4a \\ -1 &= a \end{aligned}$$

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

$$\begin{aligned} 44. \quad y &= a(x+2)^2 - 1 \\ 3 &= a(0+2)^2 - 1 \\ 4 &= 4a \\ 1 &= a \end{aligned}$$

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

$$\begin{aligned} 45. \quad y &= a(x+2)^2 + 2 \\ 0 &= a(-3+2)^2 + 2 \\ -2 &= a \end{aligned}$$

$$\begin{aligned} y &= -2(x+2)^2 + 2 \\ y &= -2x^2 - 8x - 8 + 2 \\ \boxed{y &= -2x^2 - 8x - 6} \end{aligned}$$

$$\begin{aligned} 46. \quad y &= a(x-2)^2 \\ 2 &= a(3-2)^2 \\ 2 &= a \end{aligned}$$

$$\boxed{y = 2(x-2)^2} \\ y = 2x^2 - 8x + 8$$

$$\begin{aligned} 47. \quad 9 &= a(0+2)^2 + 5 \\ 4 &= 4a \\ 1 &= a \end{aligned}$$

$$\begin{aligned} y &= (x+2)^2 + 5 \\ \boxed{y &= x^2 + 4x + 9} \end{aligned}$$

$$\begin{aligned} 49. \quad 14 &= a(-1-1)^2 - 2 \\ 16 &= a(4) \\ 4 &= a \end{aligned}$$

$$\begin{aligned} y &= 4(x-1)^2 - 2 \\ \boxed{y &= 4x^2 - 8x + 2} \end{aligned}$$

$$\begin{aligned} 50. \quad 2 &= a(0-2)^2 + 3 \\ -1 &= 4a \\ -1/4 &= a \end{aligned}$$

$$y = -1/4(x-2)^2 + 3$$

$$\boxed{y = -1/4x^2 + x + 2}$$

$$77. \quad -b/2a = 10/2(0.25) \\ = 10/.5 = \boxed{20 \text{ fixtures}}$$

$$79. \quad a) \quad \$20 \rightarrow -10,000 + 24,000 = \$14,000 \\ \$25 \rightarrow -15,625 + 30,000 = \$14,375 \\ \$30 \rightarrow -22,500 + 36,000 = \$13,500$$

$$b) \quad -b/2a = -12,000/2(-25) = \boxed{\$24}$$