Write the equation in intercept form of the quadratic with x-intercepts (-2, 0), (-1, 0) and padding through the point (1, 2). Then write the equation in standard form.

$$y = ax^2 + bx + c$$

$$\boxed{y = \tfrac{1}{3}(x+2)(x+1)} \longrightarrow \text{Intercept Form}$$

$$\tfrac{1}{3}(x^2 + x + 2x + 2)$$

$$\tfrac{1}{3}(x^2 + 3x + 2)$$

$$\boxed{y = \tfrac{1}{3}x^2 + x + \tfrac{2}{3}}$$

Standard Form

$$y = a(x-p)(x-q)$$

$$y = a(x+2)(x+1)$$

$$2 = a(1+2)(1+1)$$

$$2 = a(3)(2)$$

$$\frac{2}{6} = \frac{6a}{6}$$

$$a = \frac{2}{6} = \frac{1}{3}$$

Write the equation in standard form of the quadratic with x-intercepts (-3, 0), (3, 0) and passing through the point (1, 2).

$$y = a(x-p)(x-q)$$

$$y = a(x+3)(x-3)$$

$$2 = a(1+3)(1-3)$$

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

$$2 = -8a$$

$$a = \frac{-2}{8} = \frac{-1}{4}$$

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

$$= -\frac{1}{4}(x^2 - 9)$$

$$y = -\frac{1}{4}x^2 + \frac{9}{4}$$