1. Graphing a Parabola from Vertex Form Worksheet Graph each function.

a) \( y = 2(x + 1)^2 \)
   - Vertex = (-1, 0)
   - A.O.S. = \( x = -1 \)
   - Is the vertex a max or min? MIN
   - Stretch/Compression = 2 (Stretch)

b) \( y = \frac{1}{2} (x - 3)^2 - 5 \)
   - Vertex = (3, -5)
   - A.O.S. = \( x = 3 \)
   - Is the vertex a max or min? MIN
   - Stretch/Compression = \( \frac{1}{2} \) (Compression)

c) \( y = -3(x + 2)^2 - 1 \)
   - Vertex = (-2, -1)
   - A.O.S. = \( x = -2 \)
   - Is the vertex a max or min? MAX
   - Stretch/Compression = 3 (Stretch)

   reflected!

d) \( y = 2(x - 5)^2 \)
   - Vertex = (5, 0)
   - A.O.S. = \( x = 5 \)
   - Is the vertex a max or min? MIN
   - Stretch/Compression = 2 (Stretch)
2. Write the equation of each parabola in vertex form.

a) \( y = \frac{1}{4}x^2 \)

b) \( y = -(x-2)^2 \)

c) \( y = (x-2)^2 \)

3. Given the following information, determine the equation of the quadratic relation.

a) compressed by a factor of \( \frac{1}{2} \), opens down and has its vertex at (4, 2)

\[ a = \frac{1}{2}, y = -2(x-4)^2 + 2 \]

b) stretched by factor of 3 with a minimum value of 5 and the axis of symmetry at \( x = 1 \)

\[ a = 3, y = 3(x-1)^2 + 5 \]

4. Write the equation of each parabola in vertex form.

a) vertex (1,2), point (2,-5)

\[ y = a(x-1)^2 + 2 \]

\[ -5 = a(2-1)^2 + 2 \]

\[ -7 = a \]

\[ y = -7(x-1)^2 + 2 \]

b) vertex (3,5) and x-intercepts of 2 and 4

\[ y = a(x-3)^2 + 5 \]

\[ y = a(2-3)^2 + 5 \]

\[ -5 = a \]

\[ y = -5(x-3)^2 + 5 \]

5. The vertex of the parabola is (-2, -4). One x-intercept is 7. What is the other x-intercept?