1. [5 points ] Write the function \( f(x) = 2x^2 + 12x - 14 \) in the form \( f(x) = a(x - h)^2 + k \) by completing the square. [Hint: multiply out your answer to check that it equals \( 2x^2 + 12x - 14 \).]

**Solution:**

\[
f(x) = 2x^2 + 12x - 14 \\
= 2 \cdot (x^2 + 6x - 7) \\
= 2 \cdot (x^2 + 6x + 9 - 9 - 7) \\
= 2 \cdot (x^2 + 6x + 9 - 16) \\
= 2 \cdot (x + 3)^2 - 32
\]

1 point

2. [2 points ] Find the zeros of the function \( f(x) \).

**Solution:** Factor \( 2x^2 + 12x - 14 = 2(x + 7)(x - 1) = 0 \) so zeros are \( x = -7, 1 \).

One point for each correct zero.

3. [3 points ] Draw the graph of \( y = 2x^2 + 12x - 14 \). Identify the \( y \)-intercept, the \( x \)-intercepts and the vertex.

**Solution:** The \( y \)-intercept is \( (0, -14) \) (1 point), the \( x \)-intercepts are \( (-7, 0) \) and \( (1, 0) \) (1 point for plotting both correctly), while the vertex is \( (-3, -32) \) (1 point for plotting correctly). Join these dots with a smooth parabola.