Simplify the following:

$$(4x + 5x^2 - 7) + (6x^3 - 3x^2 + 7x + 9)$$

$$6x^3 - 2x^2 + 11x + 2$$

Simplify the following:

$$(5x^2 + 7x - 8) - (3x^2 + 2x - 4)$$

$$2x^2 + 5x - 4$$

Simplify the following:

$$(3x + 2)(5x + 3)$$

$$15x^2 + 19x + 6$$

Simplify the following:

$$(7x + 4)(2x - 3)$$
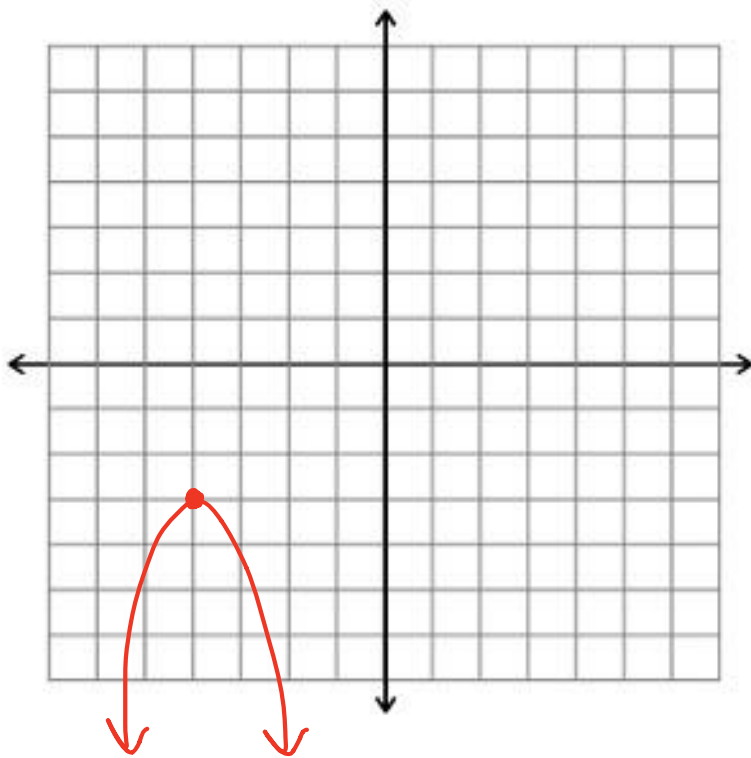
$$14x^2 - 13x - 12$$

Simplify the following:

$$(4x + 3)^2$$

$16x^2 + 24x + 9$

Find the following characteristics and graph:

$$y = -2x^2 - 16x - 35$$

Domain: $(-\infty, \infty)$

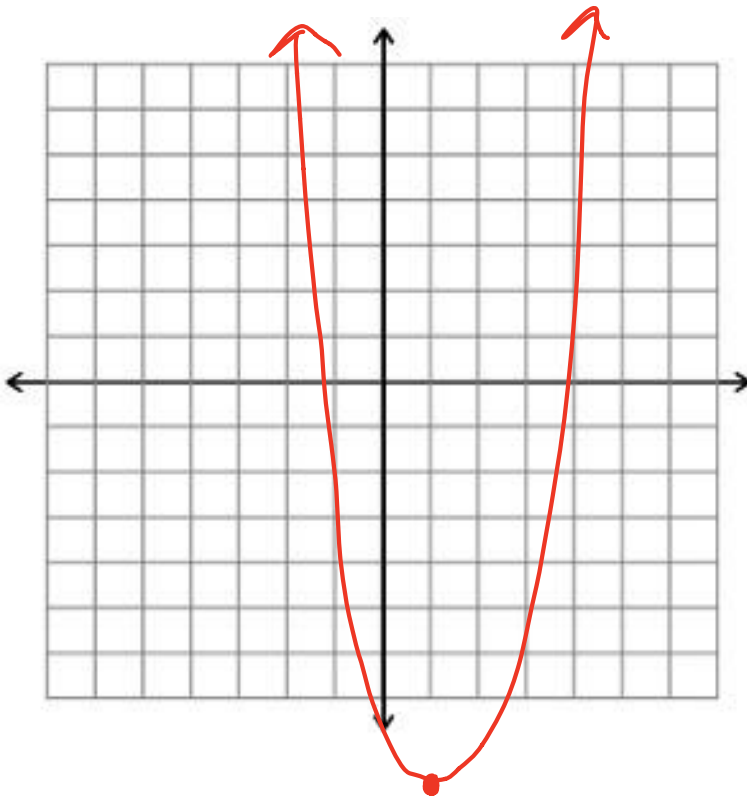Range: $(-\infty, -4)$

Axis of Symmetry:

$x = -4$

Vertex:

$(-4, -3)$

y-intercept:

$(0, -35)$

Find the following characteristics and graph:

$$y = (x - 4)(x + 2)$$

Domain: $(-\infty, \infty)$
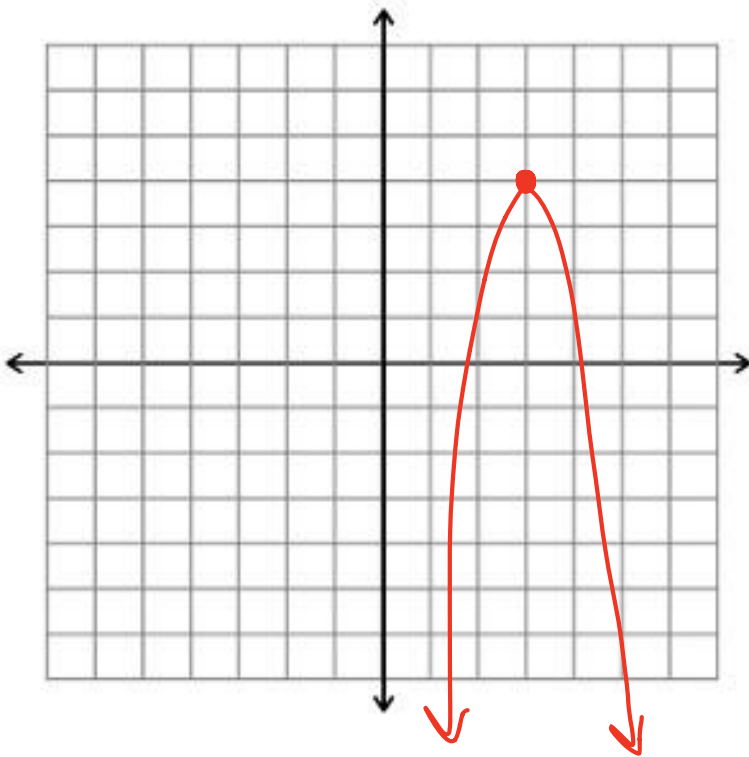
Range: $(-9, \infty)$

Axis of Symmetry:

$x = 1$

Vertex:

$(1, -9)$

y-intercept:

$(0, -8)$

Find the following characteristics and graph:

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

Domain: $(-\infty, \infty)$

Range: $(-\infty, 4)$

Axis of Symmetry:

$x = 3$

Vertex:

$(3, 4)$

y-intercept:

$(0, -14)$

If you did not previously, convert the following to standard form:

$$y = (x - 4)(x + 6)$$

$$y = x^2 + 2x - 24$$

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

$$y = -2(x^2 - 6x + 9) + 4$$
$$y = -2x^2 + 12x - 18 + 4$$
$$y = -2x^2 + 12x - 14$$