

SOLVE QUADRATIC EQUATIONS - GRAPHING**LEARNING GOALS**

- Review how to solve quadratic equations and graph the roots (x-intercepts).

REVIEW: FACTORING

Factor the following.

$$x^2 + 9x + 14$$

$$4x^2 - 12x + 9$$

REVIEW: SOLVING QUADRATIC EQUATIONS

Solve the following equations which are already factored.

$$(x + 7)(x + 2) = 0$$

$$(3x - 5)(2x + 3) = 0$$

Solve the following equations by converting to factored form.

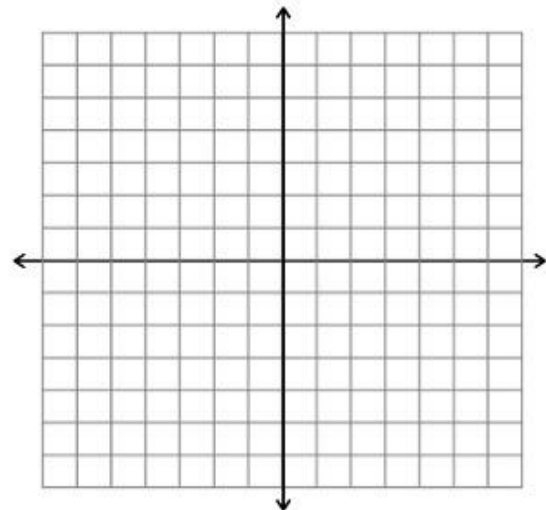
$$x^2 + 5x + 6$$

$$4x^2 - 12x = -9$$

REVIEW: SKETCHING

Graph the following equation using the x-intercepts and vertex.

$$y = (2x + 3)(x - 1)$$

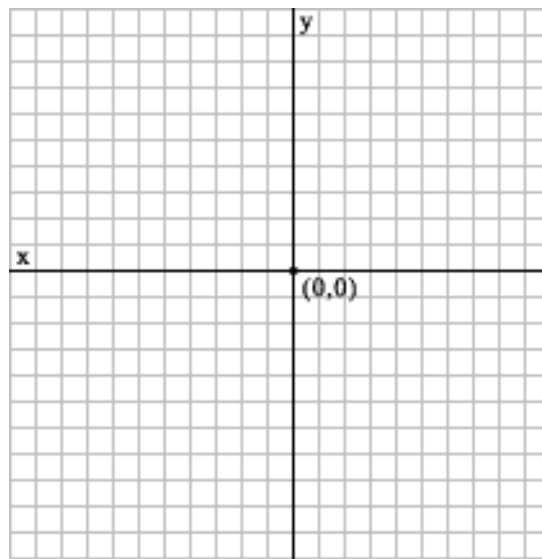
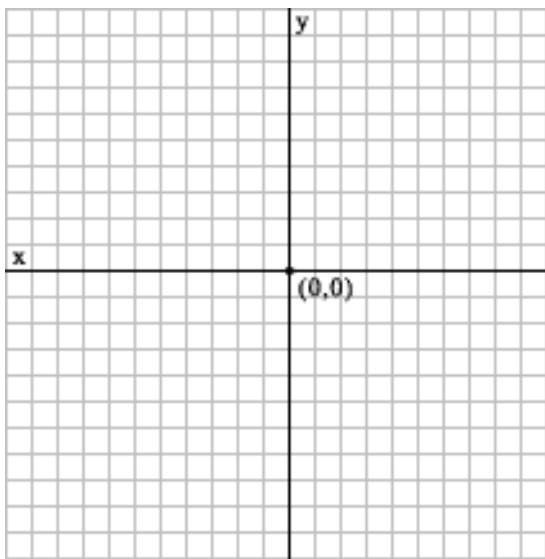


USE FACTORING TO GRAPH A QUADRATIC EQUATION

Graph the following using the x-intercepts.

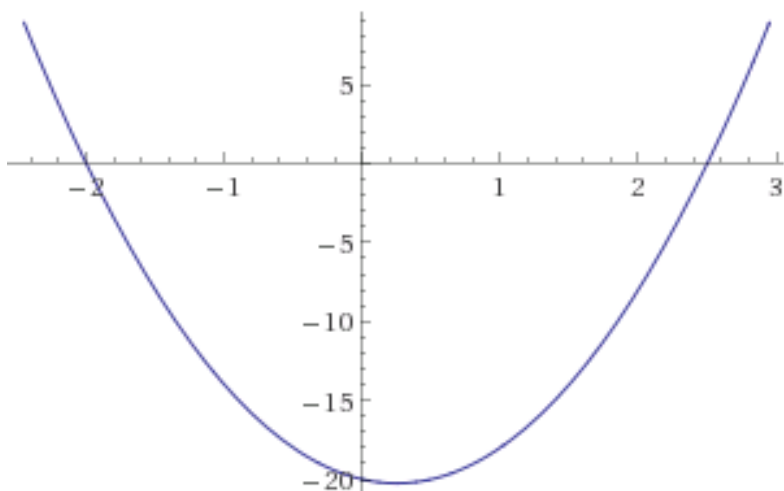
$$y = -x^2 + 5x - 6$$

$$y = 2x^2 - x - 6$$



USE THE GRAPH TO FIND THE EQUATION

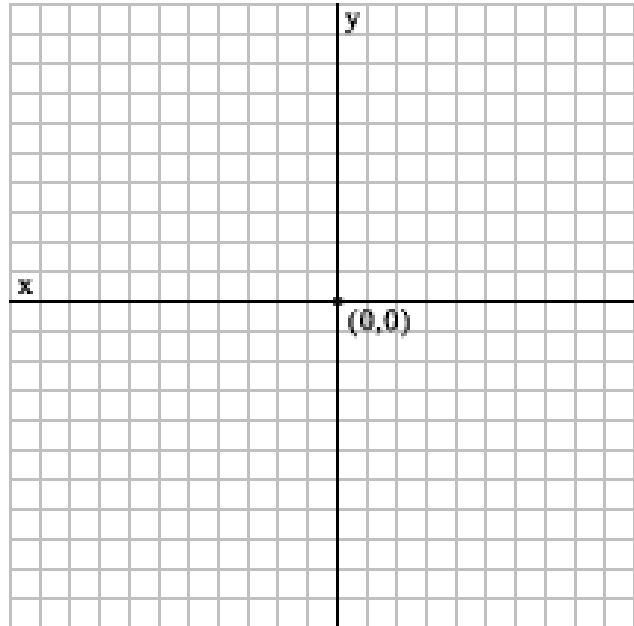
Using the x-intercepts and vertex, find the factored and standard form of the quadratic equation shown on the graph. (Use only fractions – no decimals!)



APPLYING TO WORD PROBLEMS

1. To commemorate the 100th anniversary of the Newtonville Fair, an entrance arch will be built. The design engineer uses the equation $h = -d^2 + 16$ to model the arch, where h is the height, in meters, above the ground and d is the horizontal distance, in meters, from the centre of the arch.

- a. How wide and how tall is the arch?



- b. For what values of d and h is the relation valid? Explain.

- c. If a width of 2.5 m is needed per line-up at the entrance, how many line-ups can there be?