

Work together with your partner(s) to figure these out!

NOTES:

- Find the vertex by either completing the square or using the vertex formula
- The x-intercepts are the points on the graph where $y=0$. Use this information to find the x-intercepts (if there are any)
- The y-intercept is the point on the graph where $x=0$. Use this information to find the y-intercept.
- The axis of symmetry is a vertical line which passes through the vertex. Recall that a vertical line has equation $x=c$ for some number c . Use this information to write the equation of the axis of symmetry.

Questions:

- Does a parabola of the type we have been looking at (a graph of a quadratic function) always have x-intercepts? How many x-intercepts can the graph have?

Draw examples to illustrate your answers.

- Does a a parabola of the type we have been looking at (a graph of a quadratic function) always have a y-intercept? Why or why not?

Can it have more than one y-intercept? Why or why not?

In exercises 10.7 and 10.8, for each of the quadratic functions

- 1) Find the vertex of parabola.
- 2) Find the y- intercept.
- 3) Find the x- intercepts.
- 4) Write the equation of the line of symmetry.
- 5) Graph the parabola.
- 6) Label the vertex and x- and y- intercepts with numbers or coordinates.

10.7. a) $y = x^2 - 2x - 3$

b) $y = -x^2 - 4x + 5$

10.8. a) $y = -x^2 - 2x + 8$

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