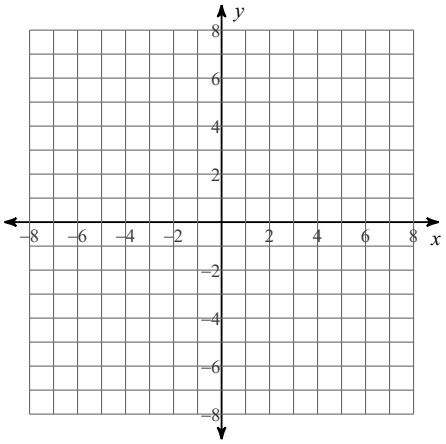
Day 7: Graphing from Vertex Form

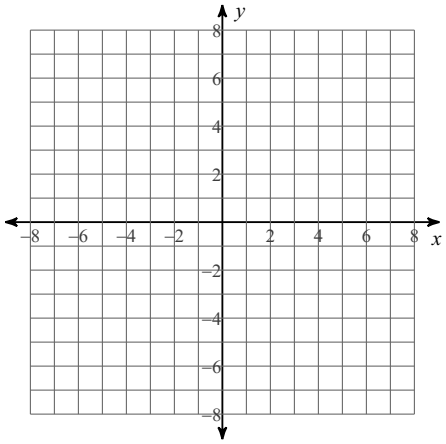
Date_____

Pick *x*-values (be smart) and build a table to find the corresponding *y*-values. Then graph the quadratic function.

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

2) $y = -(x + 4)^2 + 6$





Graphing a quadratic equation in Vertex Form $y = A(x - h)^2 + k$

3) Step 1: Find the Vertex.

Since the equation is in Vertex Form, the vertex will be at the point (h, k).

Step 2: Identify the Axis of Symmetry.

Axis of Symmetry is the *x*-value of the vertex: $x = h$.

Step 3: Identify the Maximum or Minimum Value.

Maximum/Minimum is the *y*-value of the vertex: max/min: $y = k$

Step 4: Find the *y*-intercept.

To find the *y*-intercept, plug in $x = 0$ and solve for *y*.

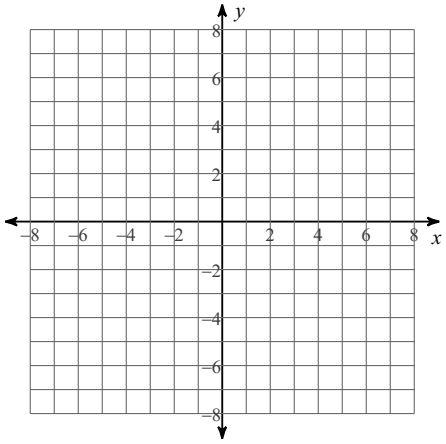
Step 5: Find the *x*-intercept(s).

To find the *x*-intercept, plug in $y = 0$ and solve for *x*. You can solve for *x* by using the square root principle or the quadratic formula.

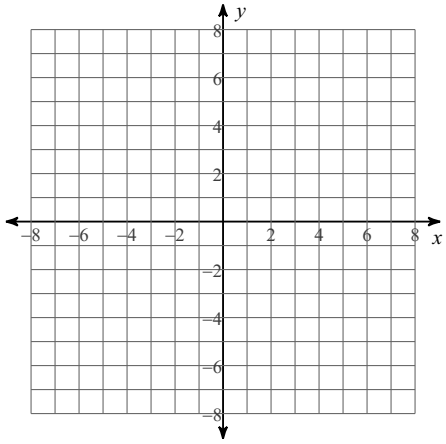
Step 6: Graph the parabola using the points found in steps 1 – 4.

Graph the quadratic equation and identify all key features.

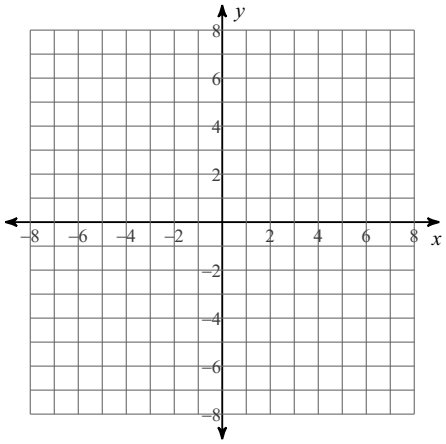
4) $y = (x-1)^2 - 1$



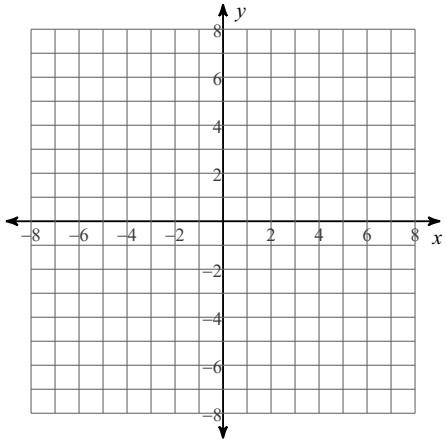
5) $y = -(x-4)^2 + 4$



6) $y = 2(x+3)^2 - 8$



7) $y = -\frac{1}{2}(x+2)^2 + 6$

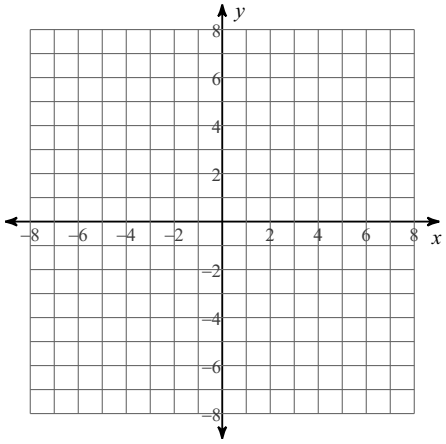


8) How can you find the exact values of the *x*-intercepts? What is the *y*-value for any point that crosses the *x*-axis?

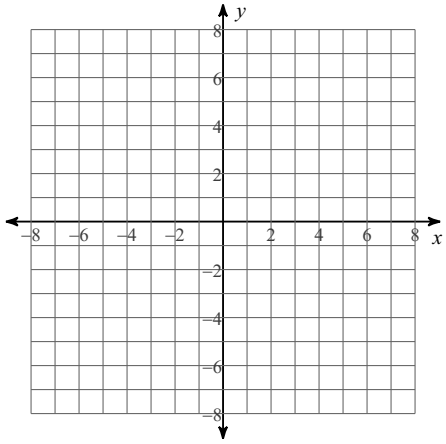
9) Why does $\sqrt{9} = 3$ and $\sqrt{9} = -3$?

Graph the quadratic equation and identify all key features of the function.

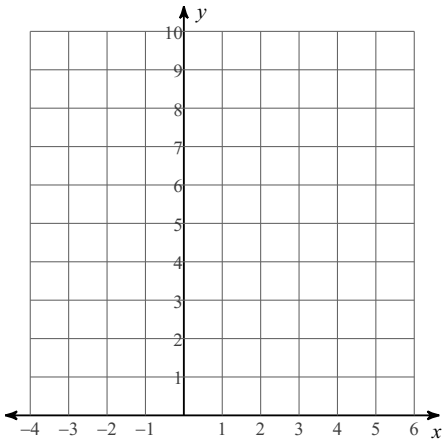
10) $y = (x + 1)^2 - 3$



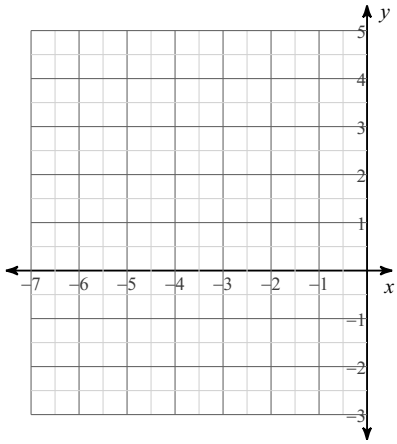
11) $y = -2(x + 1)^2 + 5$



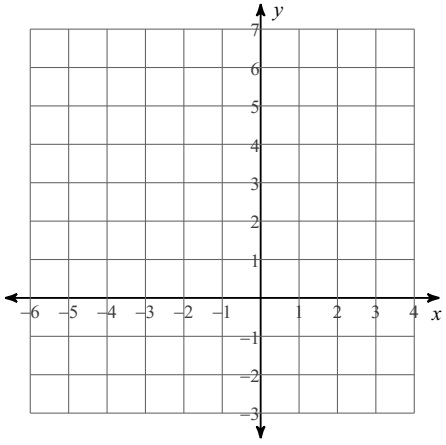
12) $y = \frac{1}{2}(x - 2)^2 + 3$



13) $y = -\frac{1}{2}(x + 4)^2 + 2$



14) $y = 2(x + 1)^2 - 2$



15) $y = -(x + 2)^2 - 2$