Comparing the Three Forms of a Quadratic Function

**Vertex Form** $y = a(x - h)^2 + k$

To Graph:
- Locate the vertex from $h, k$ (flip the sign for $h$)
- The step pattern is determined from $a$
  - if $a > 0$, the parabola opens up
  - if $a < 0$, opens down

**Factored Form** $y = a(x - r)(x - s)$

To Graph:
- The x-intercepts are plotted ($r, s$ – the signs are switched)
- The step pattern is from the value of $a$
- The value of the vertex is halfway between the x-intercepts

**Standard Form** $y = ax^2 + bx + c$

To Graph:
- The y-intercept is $c$
- We have to convert either factored form or vertex form