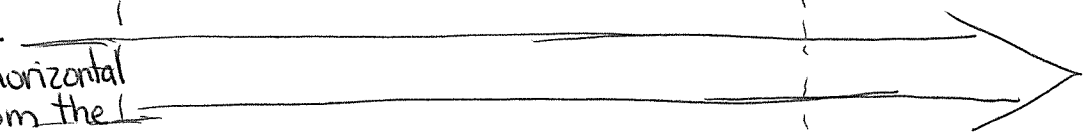
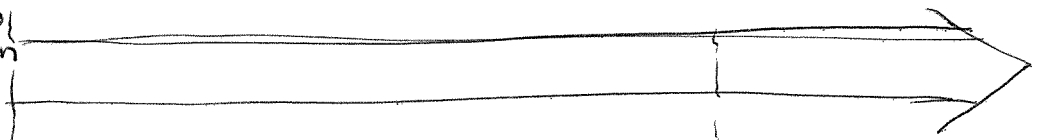
Quadratic Functions

	Standard Form $f(x)=ax^2+bx+c$	Vertex Form $f(x)=a(x-h)^2+k$	Factored Form $f(x)=a(x-x_1)(x-x_2)$
Vertex	$x=\frac{-b}{2a}$ $y=f(\frac{-b}{2a})$	(h,k)	$x=\frac{x_1+x_2}{2}$ $y=f(\frac{x_1+x_2}{2})$
y-int	$(0,c)$	Let $x=0$ and simplify	Let $x=0$ and simplify
Point Symmetric to y-int	Plot y-int & find a point on the same horizontal that is equidistant from the axis of symmetry.		
x-int	$0=ax^2+bx+c$ is solving a quadratic equation. You can ① factor, ② Complete the square and use the square root property or ③ Use quadratic formula.	$0=a(x-h)^2+k$ so $\frac{-k}{a}=(x-h)^2 \Rightarrow x-h=\pm\sqrt{\frac{-k}{a}}$ $\Rightarrow x=h+\sqrt{\frac{-k}{a}}$ or $x=h-\sqrt{\frac{-k}{a}}$	$0=a(x-x_1)(x-x_2)$ Set factors equal to zero and solve for x. If the factors look like $x-x_1$ the roots will be x_1 & x_2.
Extra Points	Choose an x and plug into the function and find y. Then find the point symmetric to the axis of symmetry.		
Comments	• y-intercept easy to find • vertex easy to find • if factorable x-int. pretty easy to find	• vertex is right there for the taking • x-intercepts use square root property to solve. • y-intercept is a little painful	• x-intercepts are really easy • y-int not too bad • Vertex is a midpoint x to x-int & then you must