Quadratic Forms

Quadratics

General Form: $ax^2 + bx + c$
Example: $x^2 + 6x + 9$
A determines whether the parabola opens up/down (-a is down)
B moves the axis of symmetry from side to side
C is the Y intercept
Vertex: $(-b/2a)$, $(f(-b/2a))$
Axis of Symmetry: $-b/2a$
Y-Intercept: C
X-Intercept: Solve

Vertex Form: $a(x - h)^2 + k$
Example: $-2(x - 4)^2 + 2$
A determines whether the parabola opens up/down (-a is down)
$(-H, K)$ is the vertex
Vertex: $(-h, k)$
Axis of Symmetry: h
Y-Intercept: Set $x = 0$, solve for y
X-Intercept: Set $y = 0$, solve for x)

Factored Form: $a(x - r)(x - s)$
Example: $(x + 3)(x + 2)$
A determines whether the parabola opens up/down (-a is down)
$(-R, -S)$ are the X intercepts
Vertex: Get the average of the x-intercepts, substitute)
Axis of Symmetry: $(r + s)/2$
Y-intercept: Set $x = 0$, solve for y
X-Intercept: $(-r, -s)$