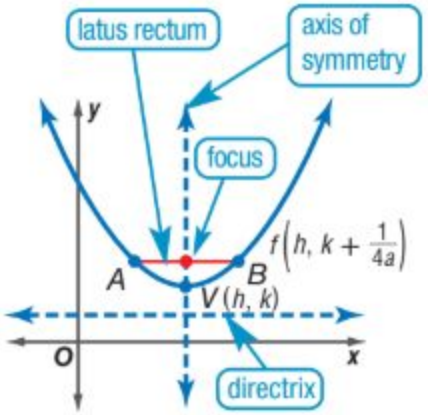
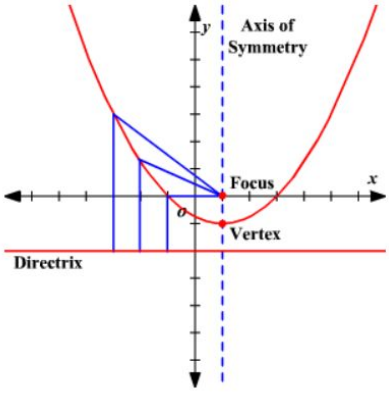
Parabola:

Latus Rectum:

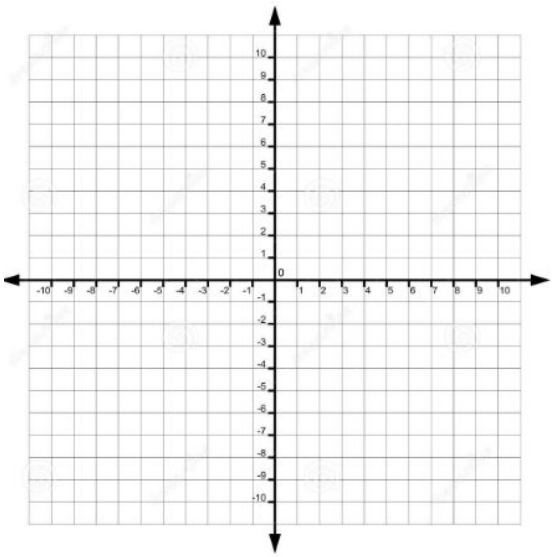




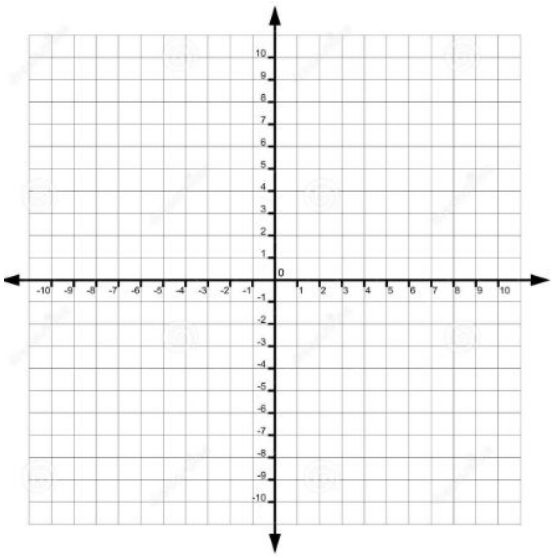
Equations of Parabolas		
Form of Equation		$x = a(y-k)^2 + h$
Direction of Opening	$a > 0$ $a < 0$	$a > 0$ $a < 0$
Vertex		
Axis of Symmetry		
Focus	$\left(h,\ k+\frac{1}{4a}\right)$	$\left(h+\frac{1}{4a}, k\right)$
Directrix	$y = k - \frac{1}{4a}$	
Length of Latus Rectum	$\left\|\frac{1}{a}\right\|$ units	$\left\|\frac{1}{a}\right\|$ units

1. Write $y = 2x^2 - 12x + 6$ in standard form. Identify the vertex, axis of symmetry, and direction of opening of the parabola.

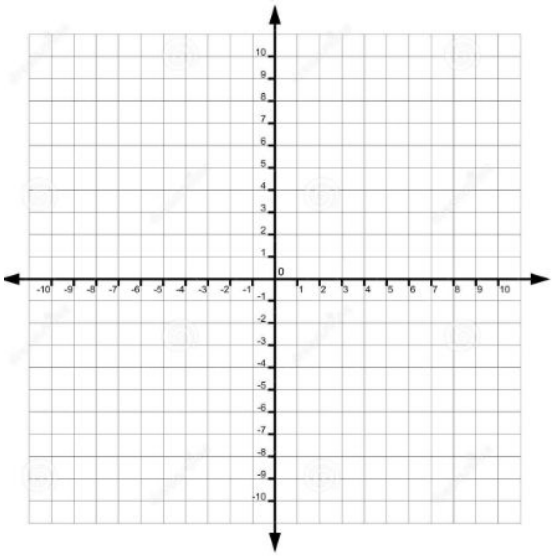
2. Graph each equation in general form:
   a. $2x - y^2 = 4y + 10$



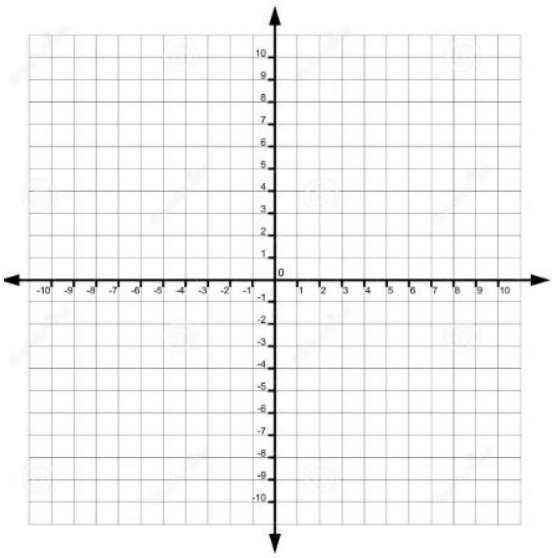
b. $y + 2x^2 + 32 = -16x - 1$



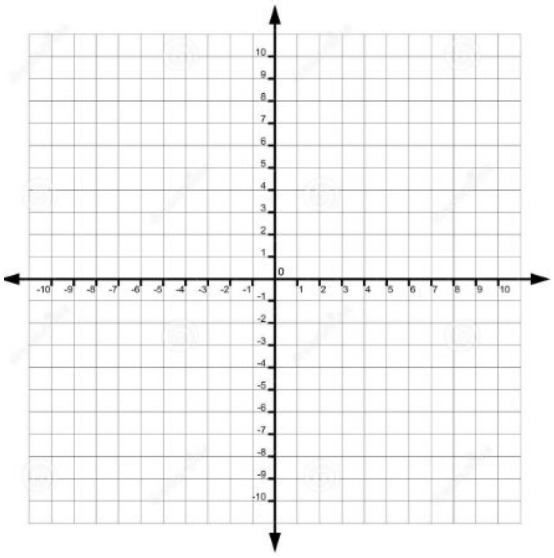
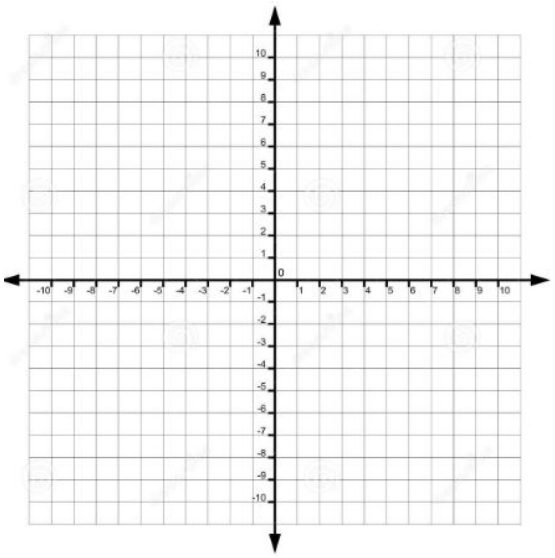
c. $3x - y^2 = 4x + 25$



3. Write an equation for a parabola with vertex at $(-2,-3)$ and directrix $y = 1$. Then graph the equation.



4. Write an equation for a parabola with vertex at $(1,3)$ and focus $(1,5)$. Then graph the equation.



5. Write an equation for a parabola with focus $(5, 6)$ and directrix $x = -2$. Then graph the equation.