Notes 33a **Name _____**

Circles (1.9)

The Distance Formula	**The Midpoint Formula**
$d = \sqrt{\left(x_2 - x_1\right)^2 + \left(y_2 - y_1\right)^2}$	$MP = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$

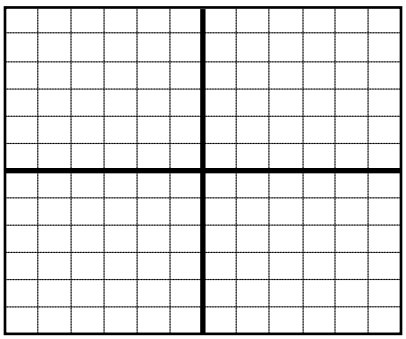
1) Find the distance and midpoint.
$(8, -4)$ and $(5, -2)$

2) Find the distance and midpoint.
$(3, -1)$ and $(-5, -2)$

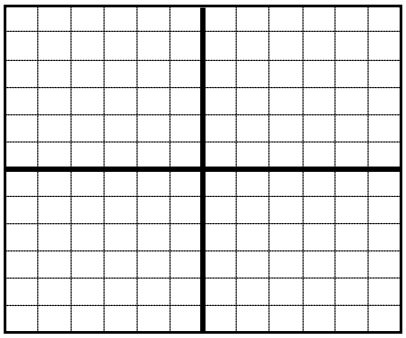
Standard Form of a Circle:

$$\left(x - h\right)^2 + \left(y - k\right)^2 = r^2$$

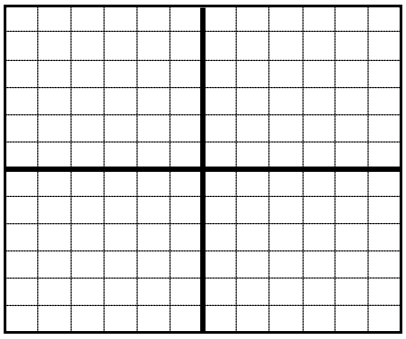
3) Graph.
$y^2 = 4 - x^2$



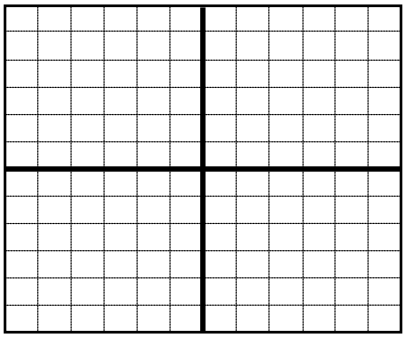
4) Graph.
$\left(x + 3\right)^2 + \left(y - 1\right)^2 = 8$



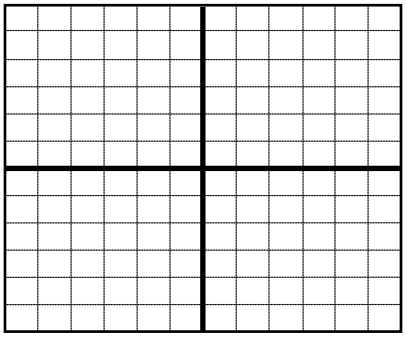
5) (2, -1) is on a circle centered at the point (-1,-2). Write the equation of the circle.



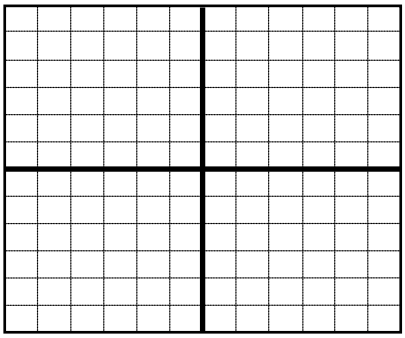
6) (5, 1) is on a circle centered at the point (1,3). Write the equation of the circle.



7) Write the equation of the circle $x^2 + y^2 - 2x + 6y + 3 = 0$ in standard form and graph.

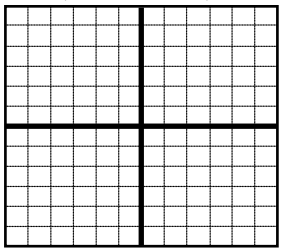
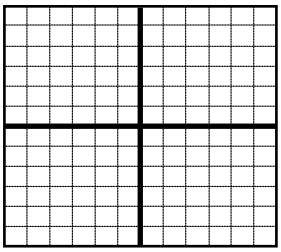


8) Write the equation of the circle $x^2 + y^2 + 4x - 8y - 5 = 0$ in standard form and graph.



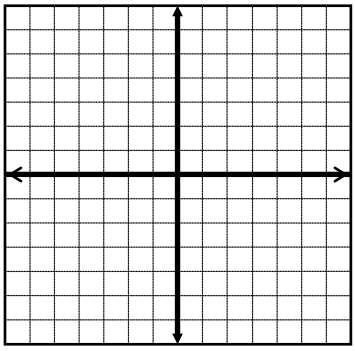
Notes 33b **Name _____**

Parabolas (9.3)

Vertical Axis of Symmetry:	**Horizontal Axis of Symmetry:**
$(x-h)^2 = 4p(y-k)$	$(y-k)^2 = 4p(x-h)$
	
Vertex: *(h, k)* **Focus:** *(h, k + p)* **Directrix:** $y = k - p$	**Vertex:** *(h, k)* **Focus:** *(h + p, k)* **Directrix:** $x = h - p$

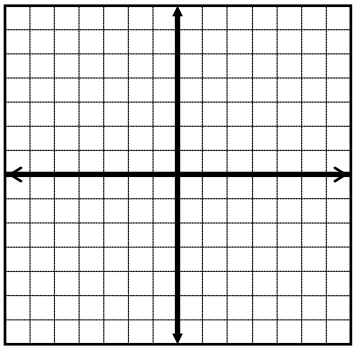
1) Graph the parabola. Identify the vertex focus and directrix.

$$-2x^2 = 16y$$



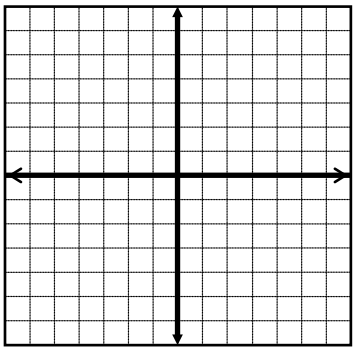
2) Graph the parabola. Identify the vertex focus and directrix.

$$6x = y^2$$



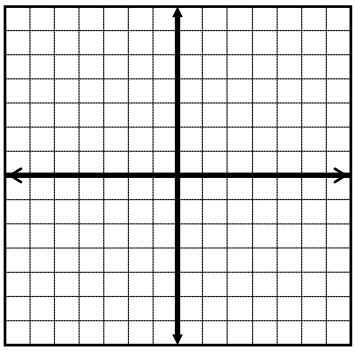
3) Graph the parabola. Identify the vertex focus and directrix.

$$(y-2)^2 = 4(x-3)$$



4) Graph the parabola. Identify the vertex focus and directrix.

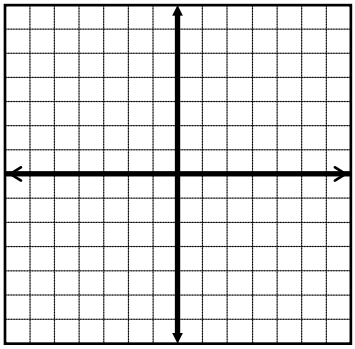
$$(x+1)^2 = -6(y-2)$$

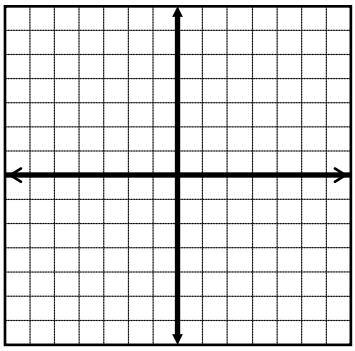


Write the equation of the parabola in standard form and graph.

5) $y^2 - 2y + 16x - 31 = 0$

6) $x^2 + 10x - 4y + 1 = 0$





7) Write an equation of the parabola with vertex (1, -3) and focus (0, -3).

8) Write an equation of the parabola with vertex (3, 0) and directrix *y* = -2.