Algebra 2H HW # 17 Name Mrs. B.

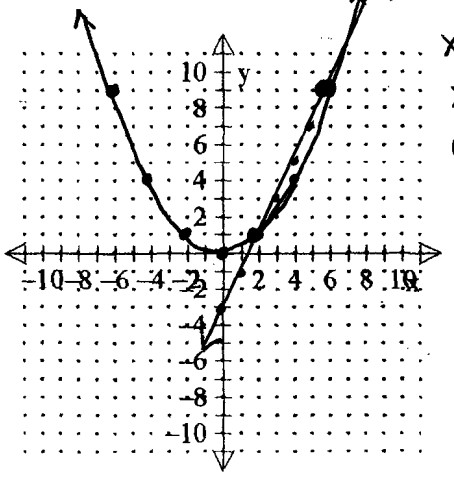
10.6/10.7 Answer Key Date 2/19/09

#1-5:

Solve and graph each system. Attach paper as needed for your algebra work.

1. $x^2 - 4y = 0$ $y = \frac{1}{4}x^2$

$y - 2x = -3$ $y = 2x - 3$



$x^2 - 4(2x-3) = 0$

$x^2 - 8x + 12 = 0$

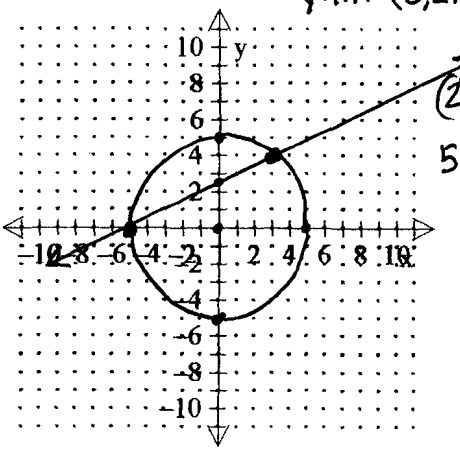
$(x-6)(x-2) = 0$

$x = 6$ or 2

$(6, 9)(2, 1)$

2. $x^2 + y^2 = 25$ $C(0,0)$ $r = 5$

$x - 2y = -5$ x-int $(-5, 0)$ y-int $(0, 2.5)$



$x = 2y - 5$

$(2y-5)^2 + y^2 = 25$

$5y^2 - 20y + 25 = 25$

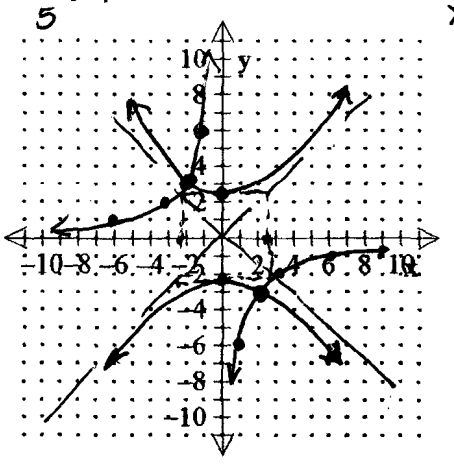
$5y(y-4) = 0$

$y = 0$ $y = 4$

$(-5, 0)(3, 4)$

3. $xy = -6$ $y = -\frac{6}{x}$

$y^2 - x^2 = 5$ $\frac{y^2}{5} - \frac{x^2}{5} = 1$



$\frac{36}{x^2} - x^2 = 5$

$36 - x^4 = 5x^2$

$0 = x^4 + 5x^2 - 36$

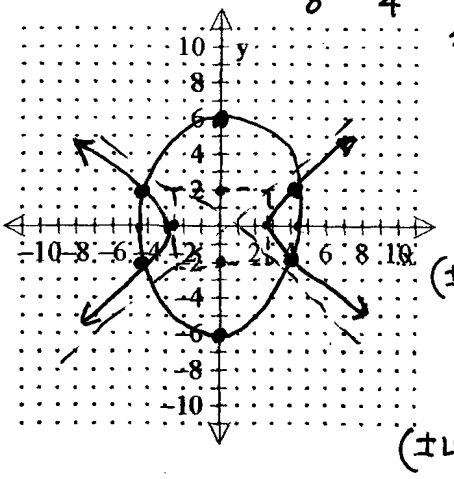
$0 = (x^2+9)(x^2-4)$

$x = \pm 3i$ $x = \pm 2$

$(2, -3)(-2, 3)$

4. $2x^2 + y^2 = 36$ $\frac{x^2}{18} + \frac{y^2}{36} = 1$

$x^2 - 2y^2 = 8$ $\frac{x^2}{8} - \frac{y^2}{4} = 1$



$2(2x^2 + y^2 = 36)$

$x^2 - 2y^2 = 8$

$5x^2 = 80$

$x^2 = 16$

$x = \pm 4$

$(\pm 4)^2 - 2y^2 = 8$

$-2y^2 = -8$

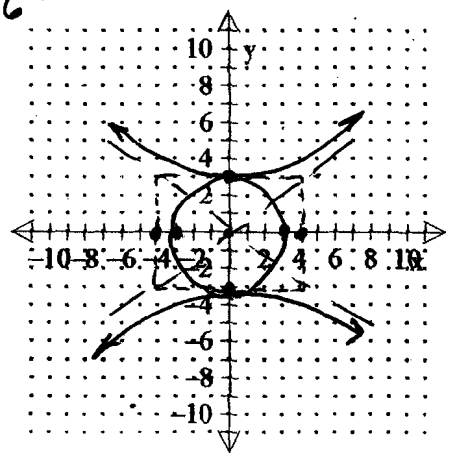
$y^2 = 4$

$y = \pm 2$

$(\pm 4, 2)(\pm 4, -2)$

5. $y^2 + x^2 = 9$ $\frac{y^2}{9} - \frac{x^2}{16} = 12$

$16y^2 - 9x^2 = 144$



$9y^2 + 9x^2 = 81$

$16y^2 - 9x^2 = 144$

$25y^2 = 225$

$y^2 = 9$

$y = \pm 3$

$(0, 3)(0, -3)$

6. Solve only. $xy = 3$ $x = \frac{3}{y}$

$2y^2 - x^2 = 7$

$2y^2 - \frac{9}{y^2} = 7$

$2y^4 - 9 = 7y^2$

$2y^4 - 7y^2 - 9 = 0$

$(2y^2 - 9)(y^2 + 1) = 0$

$y^2 = \frac{9}{2}$

$y = \frac{\pm 3\sqrt{2}}{2}$

$x = \frac{3}{\frac{\pm 3\sqrt{2}}{2}} = 3\left(\frac{\pm 2}{3\sqrt{2}}\right) = \pm\sqrt{2}$

$\left(\sqrt{2}, \frac{3\sqrt{2}}{2}\right)$

$\left(-\sqrt{2}, \frac{-3\sqrt{2}}{2}\right)$

Answer Key

Identify each conic, rewrite in standard form, graph, give vertex or center and vertices.

Show work!

7. $3y^2 - 12y + 4x + 20 = 0$

$3(y^2 - 4y \pm 4) = -4x - 20 + 12$

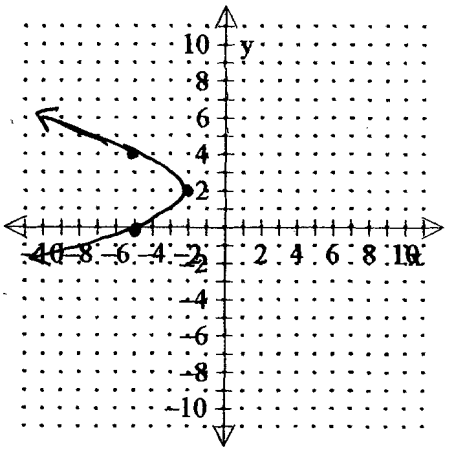
$3(y-2)^2 = -4x - 8$

$3(y-2)^2 + 8 = -4x$

$-\frac{3}{4}(y-2)^2 - 2 = x$

$V(-2, 2)$

x	y
-5	0
-5	4

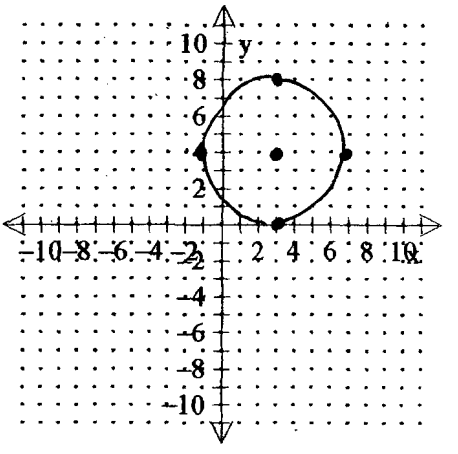


8. $5x^2 + 5y^2 - 30x - 40y + 45 = 0$

$(x^2 - 6x + 9) + (y^2 - 8y + 16) = -9 + 25$

$(x-3)^2 + (y-4)^2 = 16$

$C(3, 4)$



9. $4x^2 + y^2 - 48x - 4y + 48 = 0$

$4(x^2 - 12x + 36) + (y^2 - 4y + 4) = -48 + 4 + 144$

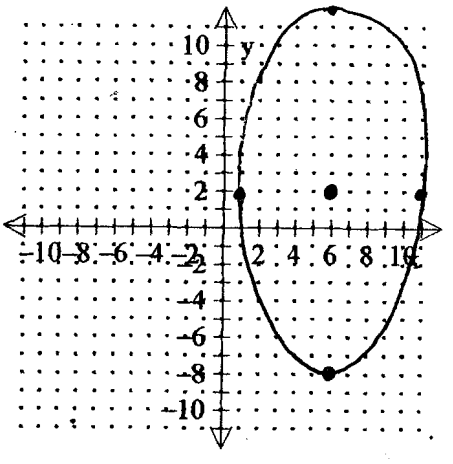
$4(x-6)^2 + (y-2)^2 = 100$

$\frac{(x-6)^2}{25} + \frac{(y-2)^2}{100} = 1$

$C(6, 2)$

$V(6, 12)(6, -8)$

Co-V $(1, 2)(11, 2)$



10. $4y^2 - 9x^2 - 36x - 16y - 164 = 0$

$4(y^2 - 4y + 4) - 9(x^2 + 4x + 4) = 164 + 16 - 36$

$4(y-2)^2 - 9(x+2)^2 = 144$

$\frac{(y-2)^2}{36} - \frac{(x+2)^2}{16} = 1$

$C(-2, 2)$

$V(-2, 8)(-2, -4)$