

**Honors Algebra 2
Conics Test Review**

Name: Key
Period: _____

Find the req'd info & graph

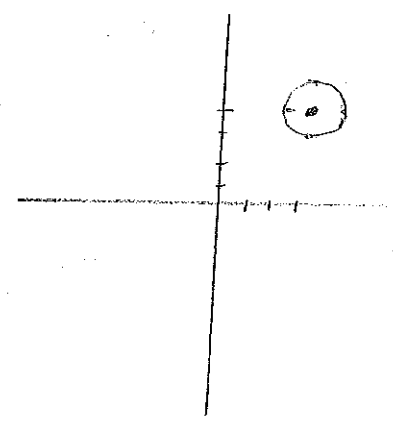
1. $x^2 + y^2 - 6x - 8y + 24 = 0$

Standard form: $(x-3)^2 + (y-4)^2 = 1$

Center: $(3, 4)$

Radius: 1

$(x^2 - 6x + 9) + (y^2 - 8y + 16) = -24 + 9 + 16$
 $(x-3)^2 + (y-4)^2 = 1$



transv. axis
|| to y

2. $y^2 - 9x^2 - 8y + 36x - 29 = 0$

Standard form: $\frac{(y-4)^2}{9} - \frac{(x-2)^2}{1} = 1$
a=3 b=1

Center: $(2, 4)$

Eqn. of transverse axis: $x = 2$

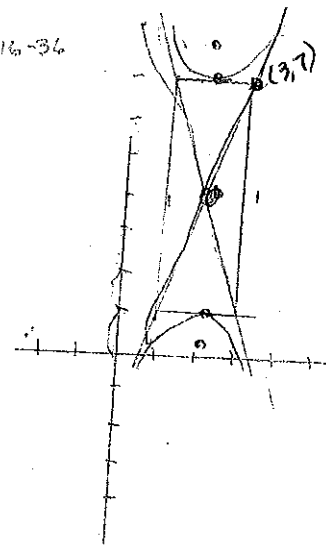
Coord. of vertices: $(2, 7)$ $(2, 1)$
Co-vert.: $(1, 4)$ $(3, 4)$

Coord. of foci: $(2, 4 - \sqrt{10})$ $(2, 4 + \sqrt{10})$

STD FORM = 1

$(y^2 - 8y) \pm (9x^2 + 36x) = 29$
 $(y^2 - 8y + 16) - 9(x^2 + 4x + 4) = 29 + 16 - 36$
 $\frac{(y-4)^2}{9} - \frac{9(x+2)^2}{9} = \frac{9}{9} = 1$

$c^2 = a^2 + b^2$
 $c^2 = 9 + 1$
 $c^2 = 10$
 $c = \pm\sqrt{10}$



VECV

EQNS of asymptotes: $y = 3x - 2$; $y = -3x + 10$

$y - 4 = 3(x - 2)$
 $y - 4 = 3x - 6$
 $y - 4 = \frac{3}{1}(x - 2)$
 $y - 4 = -3x + 6$
 $y = -3x + 10$

3. $y^2 - 4y - 4x + 16 = 0$

Standard form: $\frac{1}{4}(y-2)^2 = (x-3)$

Opens: right $p = 1$

Coord. of vertex: $(3, 2)$

Coord. of focus: $(4, 2)$

Eqn. of directrix: $x = 2$

Eqn. of axis of sym: $y = 2$

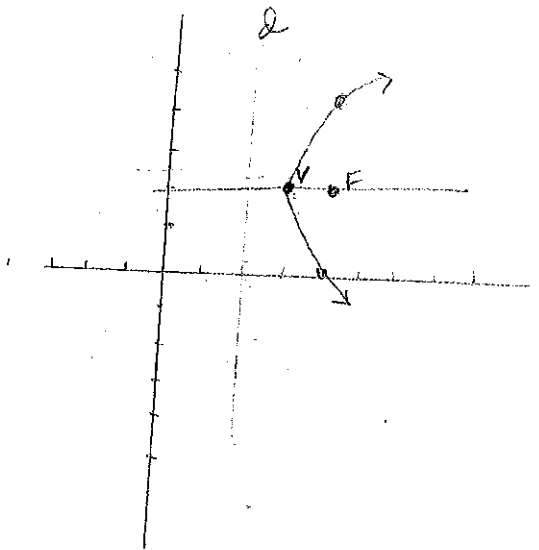
EPLR: $(4, 0)$ $(4, 4)$

2 p from focus

$y^2 - 4y = 4x - 16$
 $y^2 - 4y + 4 = 4x - 16 + 4$
 $(y-2)^2 = 4x - 12$
 $(y-2)^2 = 4(x-3)$

$4a = 4$
 $a = 1$

$\frac{1}{4}$ parabola in front of squared var



4. $2x^2 + 8x + y^2 + 4 = 0$

Standard form: $\frac{(x+2)^2}{2} + \frac{y^2}{4} = 1$

Center: $(-2, 0)$ *larger denom* $a=2$

Maj. axis: \parallel to y axis; $x = -2$

$2a$ length: 4

Min. axis: \parallel to x axis:

$2b$ length: $2\sqrt{2} \approx 2.8$

coord. of foci: $(-2, -\sqrt{2})$ $(-2, \sqrt{2})$

$2x^2 + 8x + y^2 = -4$

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

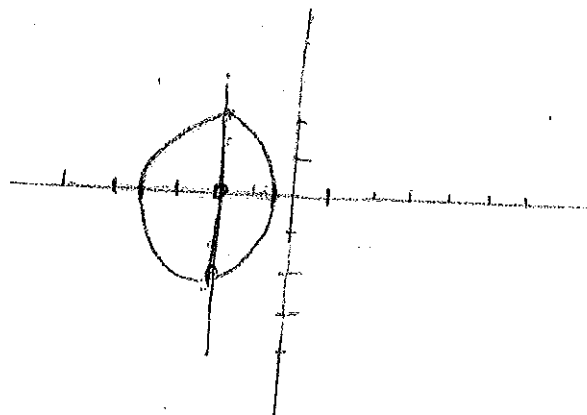
$\frac{2(x+2)^2}{4} + \frac{y^2}{4} = \frac{4}{4}$

$c^2 = a^2 - b^2$

$c^2 = 4 - 2$

$c^2 = 2$

$c = \pm\sqrt{2}$



sym of axes

Identify the conic section represented by the equation.

5. $x^2 - 4y^2 + 6x + 16y - 11 = 0$

hyp

6. $x^2 + y^2 - 6x + 4y + 9 = 0$

circle

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

$y - 3 = 2(x^2 - 2x + 1)$
 $y - 1 = 2(x - 1)^2$

parab

8. $4x^2 + 3y^2 + 8x - 24y + 51 = 0$

ellipse

Write the standard form of the equation of the conic with the given characteristics.

9. $C(2, -1); r = 4$

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

10. $C(1, -1); V(-1, -1) (3, -1); c^2 = 5$

$a^2 = 4$

$c^2 = a^2 + b^2$
 ~~$c^2 = a^2 - b^2$~~

$\frac{(x-1)^2}{4} - \frac{(y+1)^2}{1} = 1$

11. $F(0, -4); V(0, 0)$

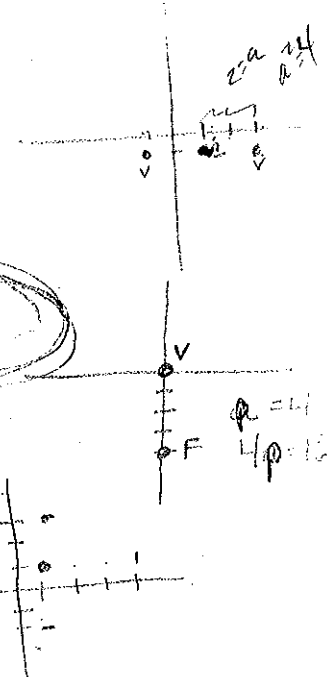
$x^2 = -16y$ $\frac{-1}{16}x^2 = y$

12. $C(1, 1); a = 3 b = 2$

major axis horizontal

$\frac{(x-1)^2}{9} + \frac{(y-1)^2}{4} = 1$

$c^2 = a^2 - b^2$
 $5 = 4 - 1$
 $hyp.$



Write the standard form equation of each conic.

13) $\frac{(x+1)^2}{1/4} + \frac{(y-4)^2}{1/3} = 1$ $4x^2 + 3y^2 + 8x - 24y + 51 = 0$

14) $\frac{(x-3)^2}{4} + \frac{(y+2)^2}{1} = 4$ $x^2 + y^2 - 6x + 4y + 9 = 0$

15) $\frac{(x+3)^2}{4} - \frac{(y-2)^2}{1} = 1$ $x^2 - 4y^2 + 6x + 16y - 11 = 0$

16) $\frac{1}{2}(x-2)^2 = y - \frac{9}{2}$ $x^2 - 4x - 2y + 13 = 0$

17) $(y-2)^2 - (x-3)^2 = 1$ $y^2 - x^2 + 6x - 4y - 6 = 0$