GSE PreCalculus
Review for the Quiz

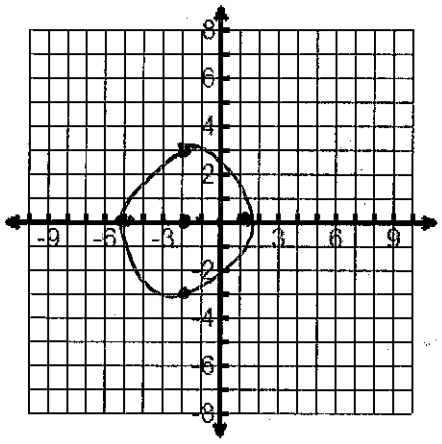
Name Key
Date _____ Day _____

Change #4) #12
Done on original in computer!

Directions:

I. **Identify the type**
II. **Graph each conic**
III. **List critical parts:**
   For Circles: (a) center, (b) radius
   For Parabolas: (a) vertex, (b) focus, (c) directrix
   For Ellipses: (a) center, (b) vertices, (c) foci

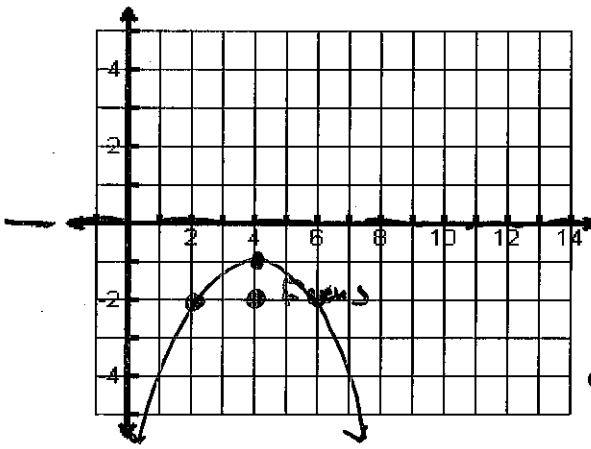
1. $(x+2)^2 + y^2 = 9$



Circle:
Ctr: (-2, 0)
radius: 3

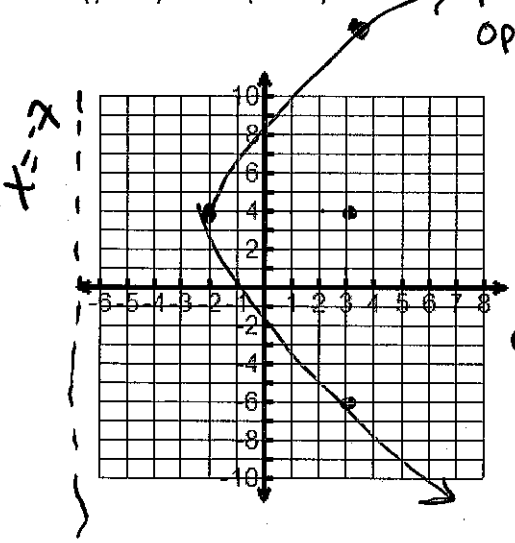
2. $\left(-\frac{1}{4}(x-4)^2\right)^{-4} = (y+1)^{-4}$

Parabola:
$(x-4)^2 = -4(y+1)$



Opens: down
vertex: (4, -1)
$\frac{4p}{4} = \frac{-4}{4}$
$p = -1$
focus: (4, -2)
directrix: $y = 0$

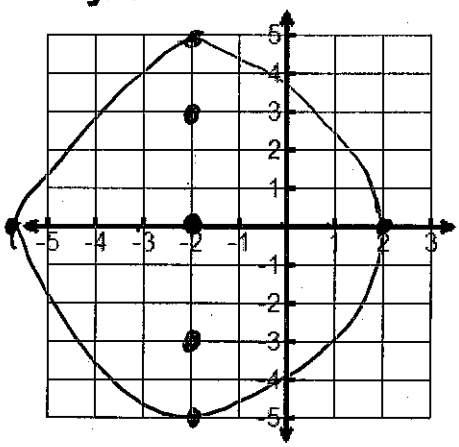
3. $(y-4)^2 = 20(x+2)$



Parabola:
opens: Right
vertex: (-2, 4)
$4p = 20$
$p = 5$
focus: (3, 4)
directrix: $x = -7$

4. $\frac{(x+2)^2}{16} + \frac{y^2}{25} = 1$

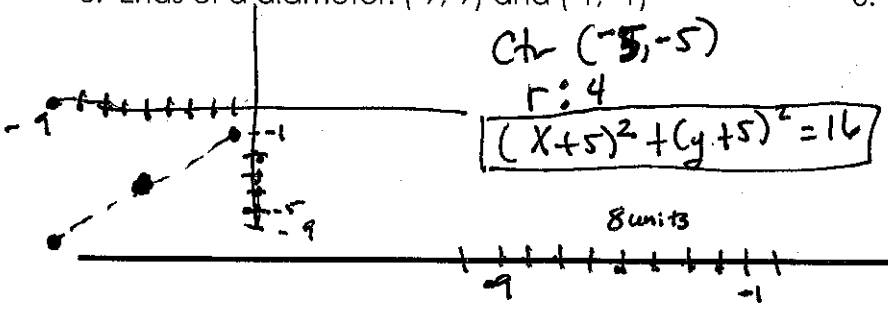
$b = 4$ $a = 5$



Ellipse:
Vertical
Ctr: (-2, 0)
Vertices:
(-2, 5) (-2, -5)
Covertices:
(2, 0) (-6, 0)
Foci: $c^2 = a^2 - b^2$
$c^2 = 25 - 16$
$c^2 = 9$
$c = 3$
(-2, 3) (-2, -3)

Use the information provided to write the standard form equation of each circle.

5. Ends of a diameter: (-9, -9) and (-1, -1)



Ctr: (-5, -5)
r: 4
$(x+5)^2 + (y+5)^2 = 16$

6. Ctr: (0, 0) Pt on a circle: (15, -13)

$r^2 = (15)^2 + (-13)^2$
$r^2 = 225 + 169$
$r^2 = 394$
$x^2 + y^2 = 394$

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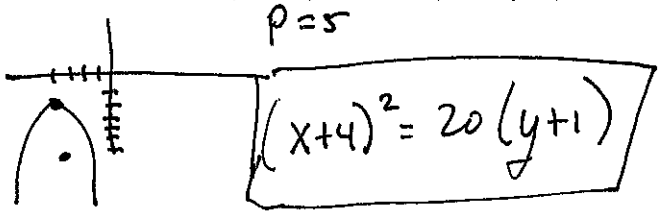
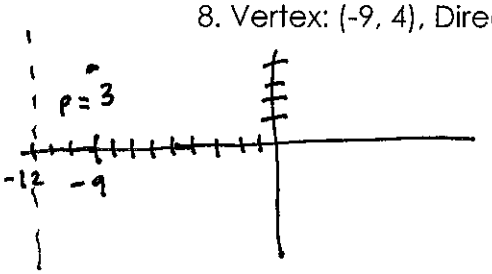
Use the information provided to write the transformational form equation of each parabola.

7. Vertex: (-4, -1), Focus: (-4, -6)



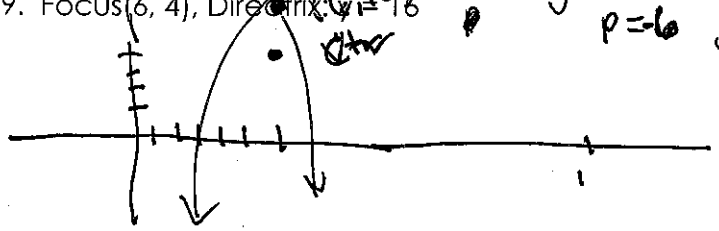
$(x+4)^2 = 20(y+1)$

8. Vertex: (-9, 4), Directrix: x= -12 Right



$(y-4)^2 = 12(x+9)$

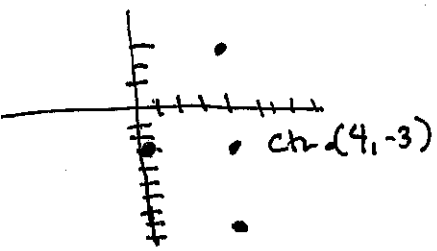
9. Focus(6, 4), Directrix: y=16 ctr p=-6 going down



$(y-6)^2 = 24(x-10)$

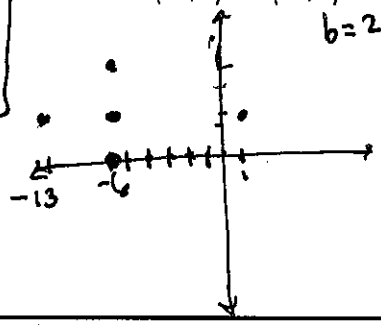
Use the information provided to write the standard form equation of each ellipse.

10. vertices (4,3), (4,-9) a=6 Vertical
Length of minor axis is 8 b=4



$\frac{(x-4)^2}{16} + \frac{(y+3)^2}{36} = 1$

11. Major axis (-13, 2) to (1, 2) a=7 ctr (-6,2) Horizontal
Minor axis (-6,4) to (-6,0) b=2



$\frac{(x+6)^2}{49} + \frac{(y-2)^2}{4} = 1$

Write each equation in standard form. Identify the related conic.

12. $x^2 + y^2 + 6x - 4y - 3 = 0$ Circle

$(6/2)^2$ $(-4/2)^2$

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

$(x^2+6x+9) + (y^2-4y+4) = 3+9+4$

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

13. $x^2 - 8x - 8y - 40 = 0$ parabola

$(-8/2)^2 = 16$

$x^2 - 8x = 8y + 40$

$(x^2-8x+16) = 8y + 40 + 16$

$(x-4)^2 = 8y + 56$

$(x-4)^2 = 8(y+7)$

14. $4x^2 + 8y^2 - 8x + 48y + 44 = 0$ ellipse

$(-2/2)^2$ $(6/2)^2$

$(4x^2-8x) + (8y^2+48y) = -44$

$4(x^2-2x+1) + 8(y^2+6y+9) = -44+4+72$

$\frac{4(x-1)^2}{32} + \frac{8(y+3)^2}{32} = \frac{32}{32}$

$\frac{(x-1)^2}{8} + \frac{(y+3)^2}{4} = 1$