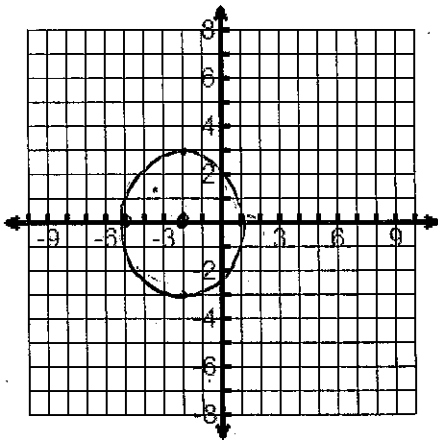


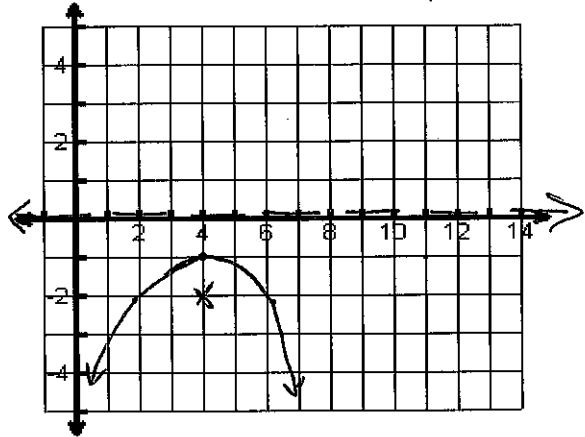
**Directions:**

- 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

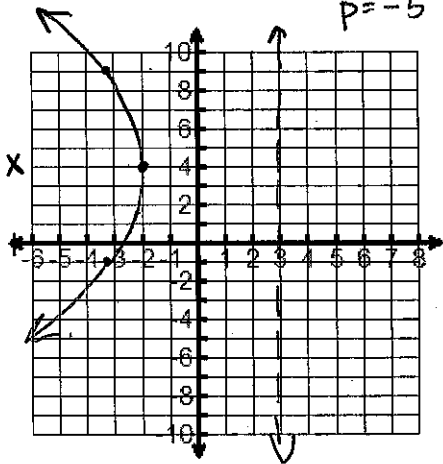
1.  $(x+2)^2 + y^2 = 9$  circle  $(-2, 0)$   
 $r=3$



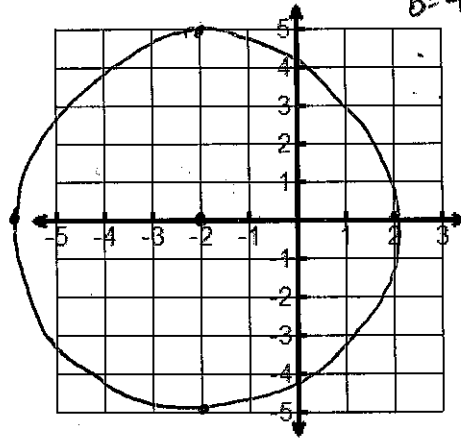
2.  $-\frac{1}{4}(x-4)^2 = y+1$  parabola  
 $(x-4)^2 = -4(y+1)$  vert:  $(4, -1)$  focus:  $(4, 2)$   
 $p = -1$  dir:  $y = 0$



3.  $(y-4)^2 = 20(x+2)$  parabola  
 vertex:  $(-2, 4)$  focus:  $(-7, 4)$   
 $p = -5$  dir:  $x = 3$



4.  $\frac{(x+2)^2}{16} + \frac{y^2}{25} = 1$  ellipse  
 Center:  $(-2, 0)$  vert:  $(-2, 5)$   
 $a = 5$   $b = 4$   
 foci:  $(-2, -3)$   
 $(-2, 3)$



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

5. Ends of a diameter:  $(-9, -9)$  and  $(-1, -1)$   
 $\frac{-9-1}{2}, \frac{-9-1}{2}$   
 $-5, -5$   
 center  $(-5, -5)$   
 $r = \sqrt{(-9+5)^2 + (-9+5)^2}$   
 $= \sqrt{16+16}$   
 $= \sqrt{32}$   
 $(x+5)^2 + (y+5)^2 = 32$

6. Ctr: origin  $(0, 0)$  Pt on a circle:  $(15, -13)$   
 $r = \sqrt{(15-0)^2 + (-13-0)^2}$   
 $= \sqrt{394}$   
 $x^2 + y^2 = 394$

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

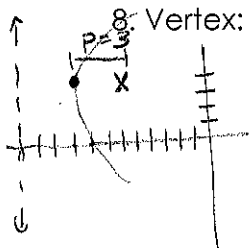
7. Vertex:  $(-4, -1)$ , Focus:  $(-4, -6)$

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



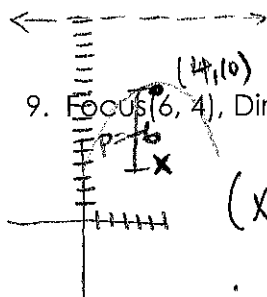
8. Vertex:  $(-9, 4)$ , Directrix:  $x = -12$

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



9. Focus  $(6, 4)$ , Directrix:  $y = 16$

$$(x-4)^2 = -24(y-10)$$

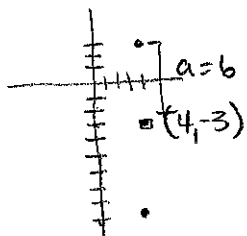


Use the information provided to write the standard form equation of each ellipse.

10. vertices  $(4, 3)$ ,  $(4, -9)$

Length of minor axis is  $8 \rightarrow b = 4$

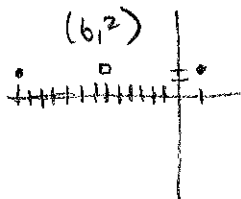
$$\frac{(x-4)^2}{16} + \frac{(y+3)^2}{36} = 1$$



11. Major axis  $(-13, 2)$  to  $(1, 2) \rightarrow a = 7$

Minor axis  $(-6, 4)$  to  $(-6, 0) \rightarrow b = 2$

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



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

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

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

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

$$-\frac{8}{2} = -4^2$$

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

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

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