

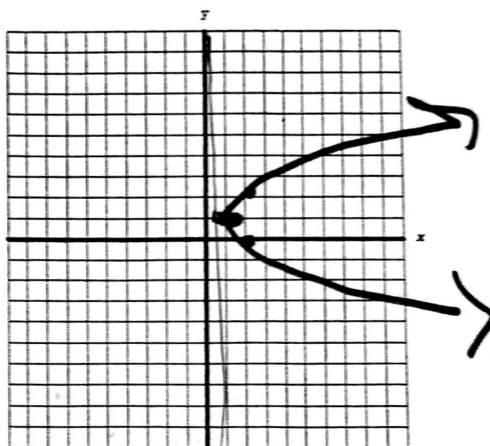
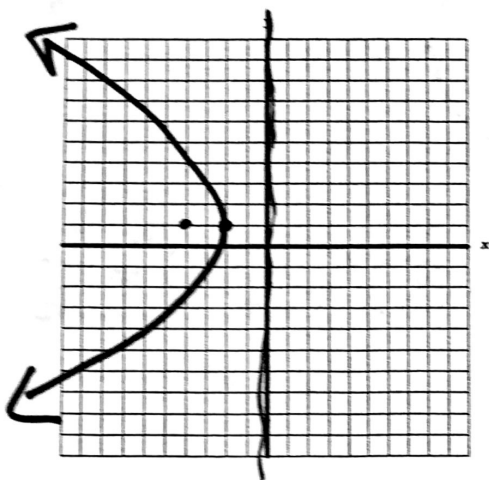
For #1 and #2 a.) Find an equation of the parabola with the given characteristics.
b.) Graph your equation from part a. Find at least one more point and reflect it.

1. focus (-4, 1); vertex (-2, 1)

2. focus (5/4, 1); directrix $x = 3/4$

$$(y-1)^2 = -8(x+2)$$

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



3. Find the vertex, focus, directrix, axis of symmetry, and graph.

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

4. Find the vertex, focus, directrix, axis of symmetry, and graph.

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

$$V(3, -1)$$

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

$$F(3, -7/8)$$

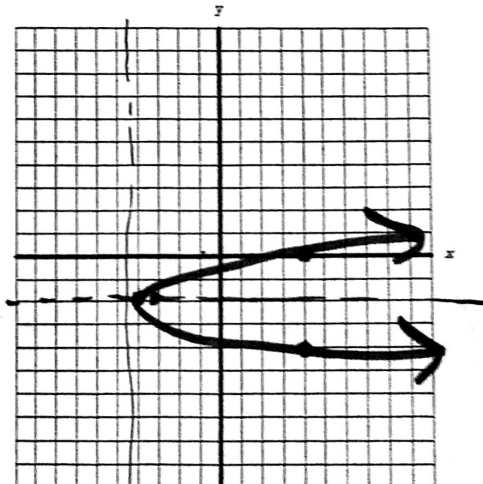
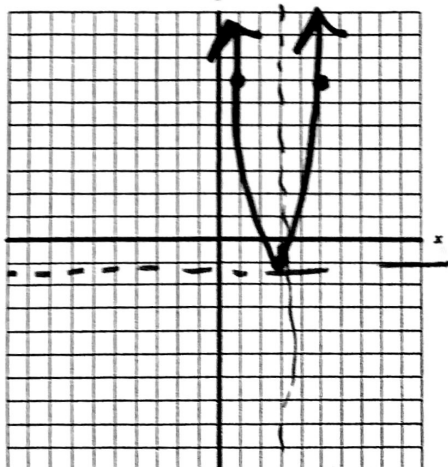
$$F(-37/8, -2)$$

$$D \ y = -9/8$$

$$D \ x = -41/8$$

$$AoS \ x = 3$$

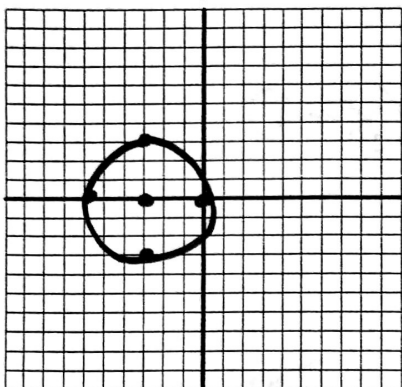
$$AoS \ y = -2$$



- a.) For each equation of a circle, identify the center and the radius.
 b.) Graph the circle.

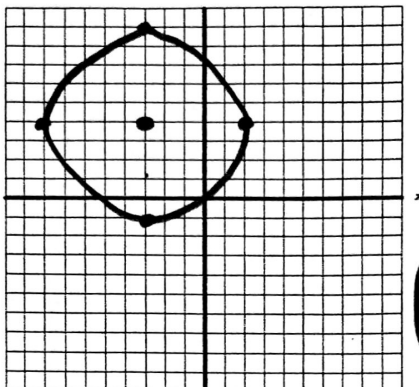
5. $(x+3)^2 + y^2 = 9$

$(-3, 0) \quad r=3$



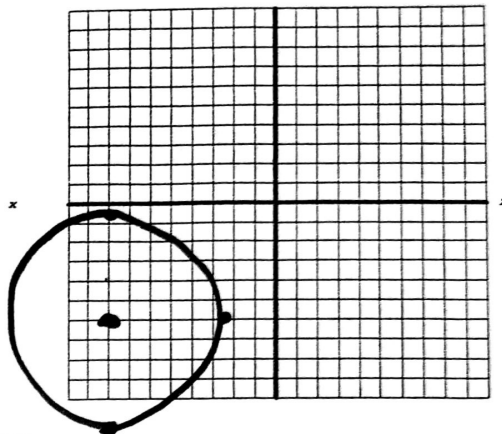
6. $(x+3)^2 + (y-4)^2 = 25$

$(-3, 4) \quad r=5$



7. $(x+8)^2 + (y+6)^2 = 32$

$(-8, -6) \quad r=4\sqrt{2}$



Write an equation of the circle with the given center C and radius r.

8. $C(-6, -1); r = \sqrt{11}$

$(x+6)^2 + (y+1)^2 = 11$

9. $C(7, -2); r = 3\sqrt{5}$

$(x-7)^2 + (y+2)^2 = 45$

10. $C(\sqrt{3}, -8); r = \frac{3}{4}$

$(x-\sqrt{3})^2 + (y+8)^2 = \frac{9}{16}$

Find an equation of a circle with the given characteristics.

11. Center at (4, 3) and tangent to the y-axis

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

12. Radius = 5, center in the third quadrant, and tangent to both axes

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

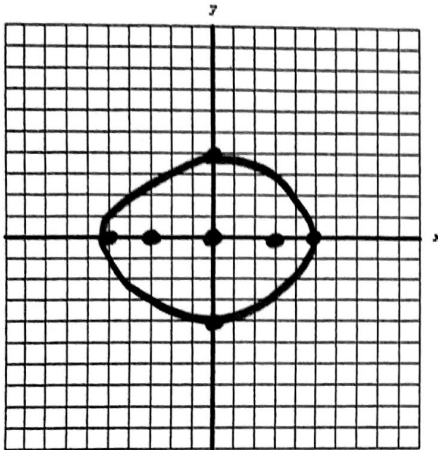
13. Diameter with endpoints (-7, -1) and (3, -7)

$(x+2)^2 + (y+4)^2 = 34$

- a.) List the center, vertices, co-vertices, and foci of each ellipse.
 b.) Graph the ellipse.

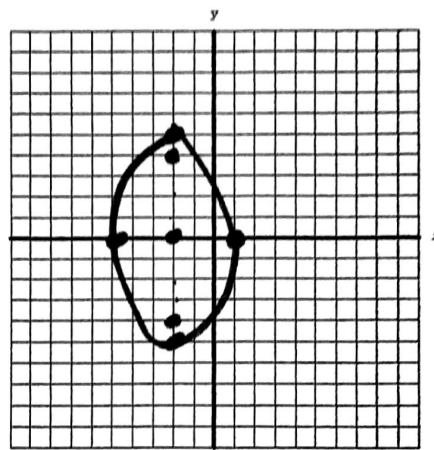
$$14. \frac{x^2}{25} + \frac{y^2}{16} = 1$$

$C(0,0)$
 $V(\pm 5,0)$
 $CV(0,\pm 4)$
 $F(\pm 3,0)$



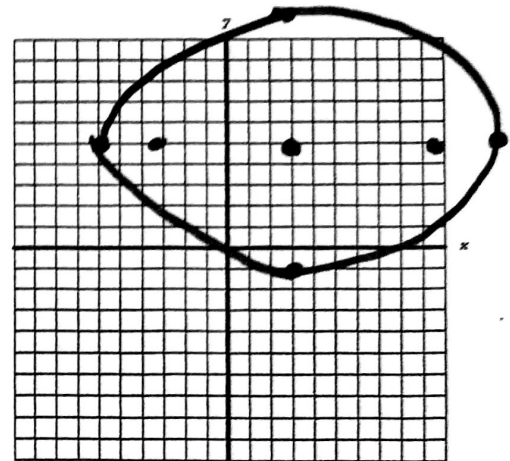
$$15. \frac{(x+2)^2}{9} + \frac{y^2}{25} = 1$$

$C(-2,0)$
 $V(-2,-5) \& (-2,5)$
 $CV(1,0) \& (-5,0)$
 $F(-2,4) \& (-2,-4)$



$$16. \frac{(x-3)^2}{81} + \frac{(y-5)^2}{36} = 1$$

$C(3,5)$
 $V(-6,5) \& (12,5)$
 $CV(3,-1) \& (3,11)$
 $F(3+\sqrt{5}, 5)$



Write an equation of the ellipse with the given characteristics.

17. center (4, -1); vertex (9, -1); focus (7, -1)

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

18. center (3, 5); vertex (3, 16); minor axis 14 units long

$$\frac{(x-3)^2}{49} + \frac{(y-5)^2}{121} = 1$$

19. center (-2, 7); focus (3, 7); major axis 26 units long

$$\frac{(x+2)^2}{169} + \frac{(y-7)^2}{144} = 1$$