

CAT

Review Circles/Parabolas/Ellipses

Name Key
Date _____ Hour _____

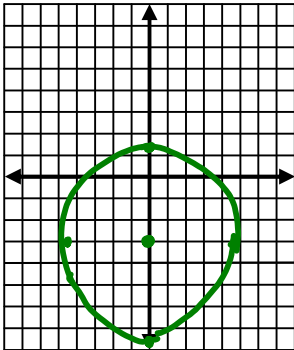
Write each equation in standard form if needed, and then graph the conic section.

Identify and label appropriate information noted in parentheses.

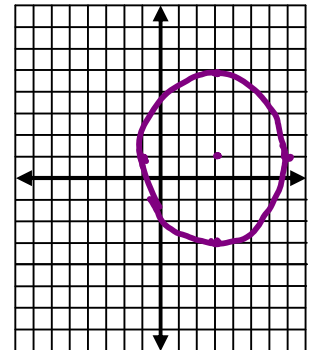
Circles (center and radius)

1) $x^2 + (y + 3)^2 = 20$

2) $x^2 + y^2 - 6x - 2y - 6 = 0$



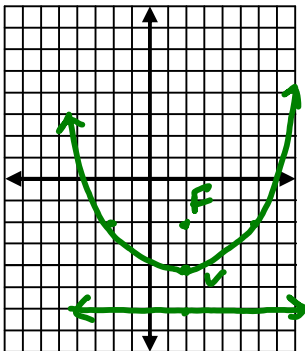
S.F. $(x-3)^2 + (y-1)^2 = 16$ (2)
 (1) $(0, -3)$ Center $(3, 1)$ (2)
 (1) $2\sqrt{5} \approx 4.5$ Radius 4 (2)



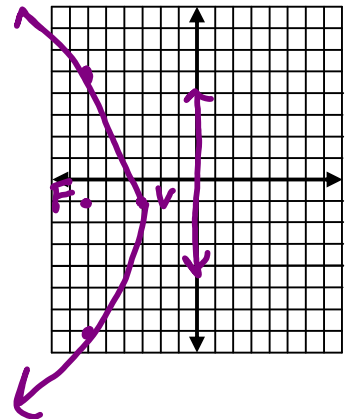
Parabolas (vertex, focus, directrix, focal width)

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

4) $y^2 + 12x + 2y = -37$



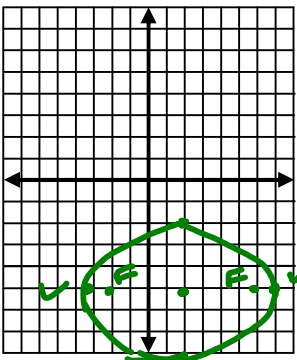
S.F. $(y+1)^2 = -12(x+3)$ (4)
 (3) $(2, -4)$ Vertex $(-3, -1)$ (4)
 (3) $(2, -2)$ focus $(-6, -1)$ (4)
 (3) $y = -6$ directrix $x = 0$ (4)
 (3) 8 Focal Width 12 (4)



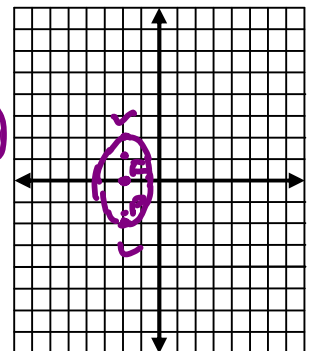
Ellipses (center, vertices, foci and eccentricity)

5) $\frac{(x-2)^2}{25} + \frac{(y+5)^2}{9} = 1$

6) $2x^2 + 8x + y^2 + 4 = 0$



S.F. $\frac{y^2}{4} + \frac{(x+2)^2}{2} = 1$ (6)
 (5) $(2, -5)$ center $(-2, 0)$ (6)
 (5) $(7, -5)$ $(-3, -5)$ Vertices $(-2, 2)$ $(-2, -2)$ $(2 \pm \sqrt{2}, 0)$ (6)
 (5) $(-2, -5)$ $(6, -5)$ foci $(-2, \pm\sqrt{2})$ (6)
 (5) $\frac{4}{5}$ eccentricity $\frac{\sqrt{2}}{2}$ (6)



7-9 Write the equation for each circle described.

7) Center (5, -3) and radius 2

$$7) \underline{(x-5)^2 + (y+3)^2 = 4}$$

8) Center (-2, 7) passing through (4, 1)

$$8) \underline{(x+2)^2 + (y-7)^2 = 72}$$

9) Diameter has endpoints (3, 4) and (-1, 2)

$$9) \underline{(x-1)^2 + (y-3)^2 = 5}$$

10-12 Write the equation for each parabola described.

10) Vertex at the origin, directrix $x = 3$

$$10) \underline{y^2 = -12x}$$

11) Focus (2, 5), Vertex (2, 3)

$$11) \underline{(x-2)^2 = 8(y-3)}$$

12) Vertex (1, -2), opens left, focal width = 15

$$12) \underline{(y+2)^2 = -15(x-1)}$$

13-16 Write the equation for each ellipse described.

13) foci (-2, 0) and (2, 0) and minor axis length 6

$$13) \underline{\frac{x^2}{13} + \frac{y^2}{9} = 1}$$

14) Major axis length 10 on x-axis and minor axes length 8

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

15) Endpoints of axis (0, ± 7) and (± 4 , 0)

$$15) \underline{\frac{y^2}{49} + \frac{x^2}{16} = 1}$$

16) Ellipse with major axis from (-6, 4) to (4, 4); minor axis (-1, 1) and (-1, 7)

$$16) \underline{\frac{(x+1)^2}{25} + \frac{(y-4)^2}{9} = 1}$$