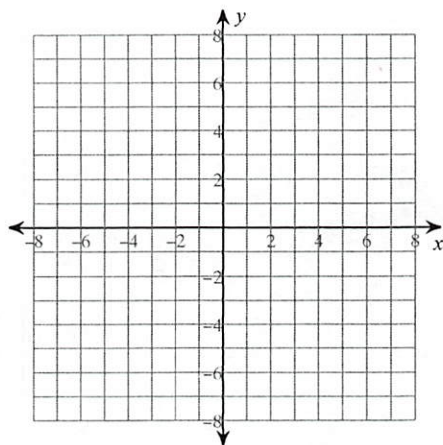Pre-Calculus
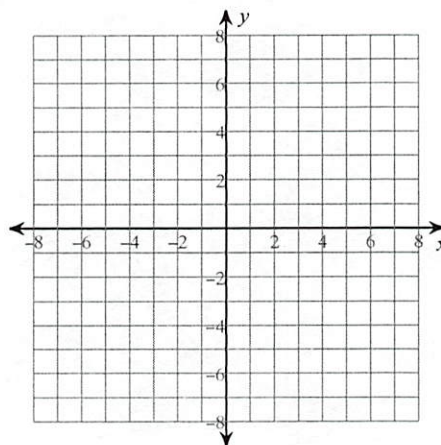
Name_____

Circles and Ellipses

Date_____ Period_____

Identify the center and radius of each. Then sketch the graph.
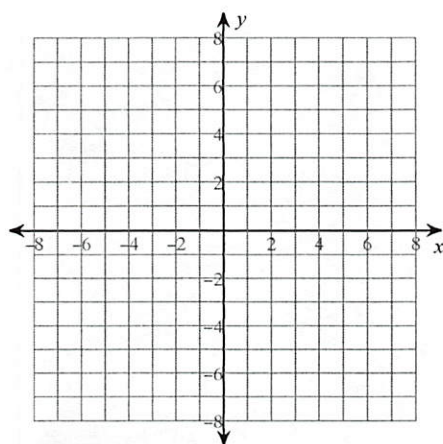
1) $(x + 2)^2 + (y - 3)^2 = 8$

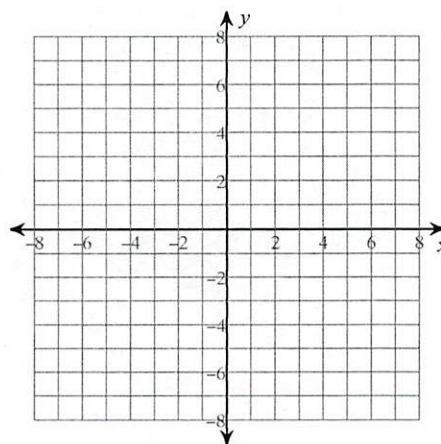2) $x^2 + y^2 - 6x + 2y - 6 = 0$

Graph the ellipse:

Identify the center, all 4 vertices (major and minor), foci, eccentricity and area.
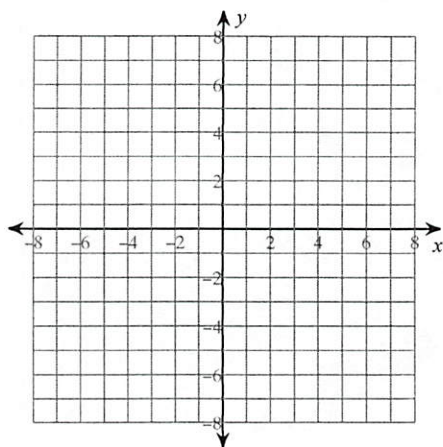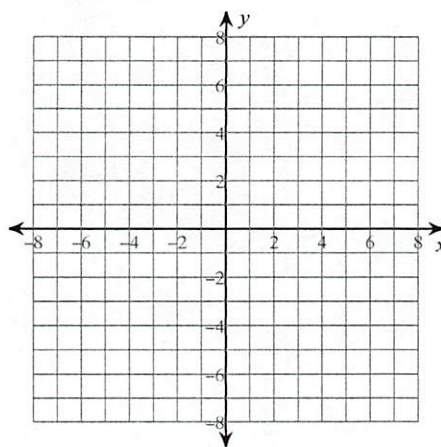
3) $\dfrac{x^2}{16} + \dfrac{y^2}{9} = 1$

4) $\dfrac{x^2}{4} + \dfrac{y^2}{25} = 1$

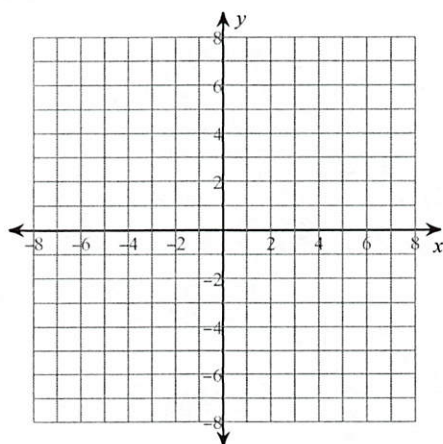5) $\dfrac{(x+2)^2}{25} + \dfrac{(y+2)^2}{9} = 1$
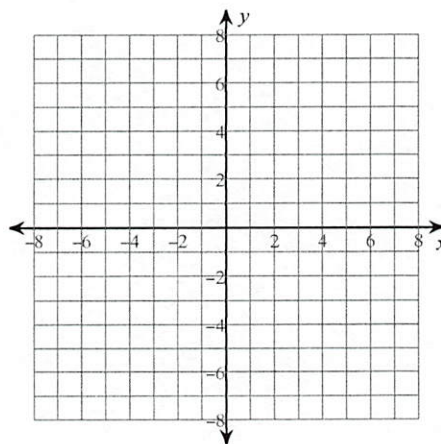
6) $\dfrac{(x-1)^2}{16} + \dfrac{(y+2)^2}{25} = 1$

Rewrite the equation in standard form and graph:
Identify the center, all 4 vertices (major and minor), foci, eccentricity and area.

7) $9x^2 + y^2 - 9 = 0$

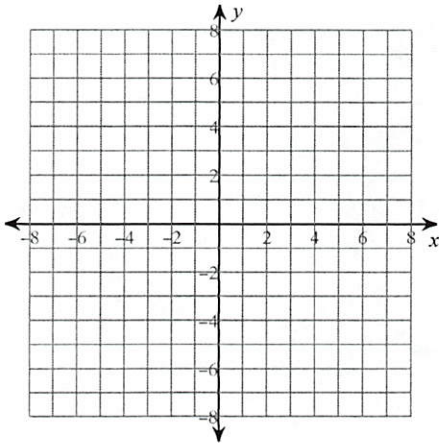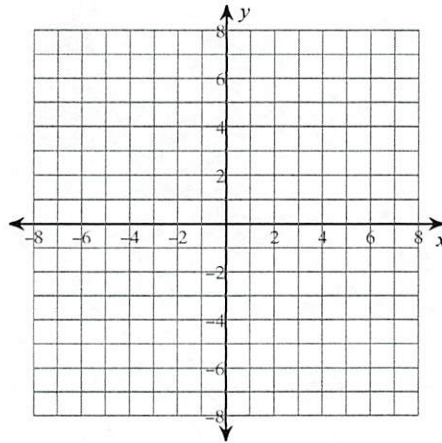8) $x^2 + 4y^2 - 36 = 0$

Identify the vertices and foci of each. Then sketch the graph.

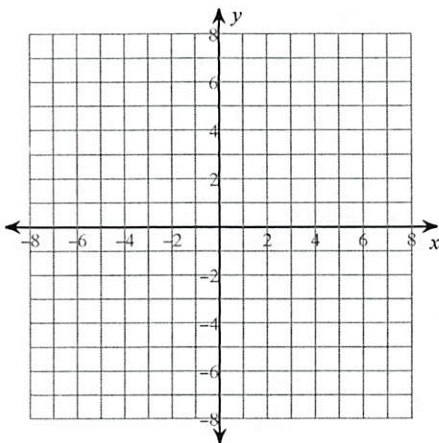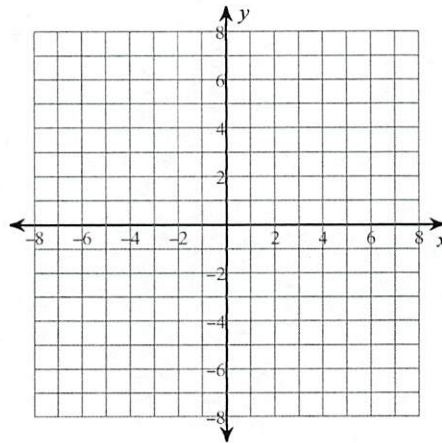9) $4x^2 + y^2 - 24x + 2y + 21 = 0$

10) $4x^2 + y^2 - 32x - 2y + 29 = 0$

11) $4x^2 + 49y^2 - 294y + 245 = 0$

12) $25x^2 + 9y^2 - 150x + 18y + 9 = 0$

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

13) Major-Vertices: $(0, 5), (0, -5)$
    Foci: $(0, 4), (0, -4)$

14) Major-Vertices: $(5, 0), (-5, 0)$
    Foci: $(3, 0), (-3, 0)$

15) Major-Vertices: $(11, -9), (1, -9)$
    Foci: $(9, -9), (3, -9)$

16) Major-Vertices: $(3, 16), (3, -10)$
    Foci: $(3, 8), (3, -2)$

17) Foci: $(7 + 4\sqrt{6}, -2), (7 - 4\sqrt{6}, -2)$
    Minor-vertices: $(7, 3), (7, -7)$

18) Foci: $(-8, -6 + 3\sqrt{5}), (-8, -6 - 3\sqrt{5})$
    Minor-vertices: $(-2, -6), (-14, -6)$

19) Foci: $(5 + 2\sqrt{6}, 9), (5 - 2\sqrt{6}, 9)$
    Endpoints of major axis: $(12, 9), (-2, 9)$

20) Foci: $(8, -5 + 4\sqrt{6}), (8, -5 - 4\sqrt{6})$
    Endpoints of minor axis: $(13, -5), (3, -5)$

21) Center: $(7, -9)$
    Major Vertex: $(-4, -9)$
    Focus: $(7 + \sqrt{85}, -9)$

22) Center: $(-7, 4)$
    Minor-Vertex: $(2, 4)$
    Focus: $(-7, 4 - \sqrt{19})$