Precalculus

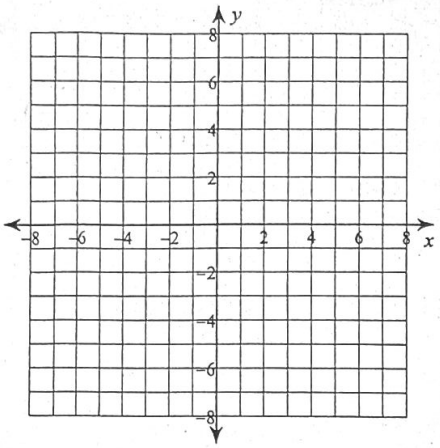
Name_____

Conics Study Guide

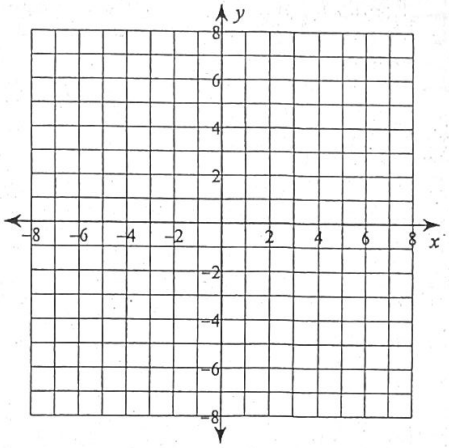
Date_____

Graph the following conic sections. Find all applicable information.

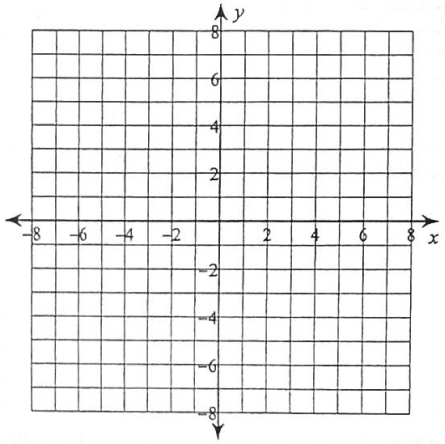
1) $y = (x+5)^2 - 3$



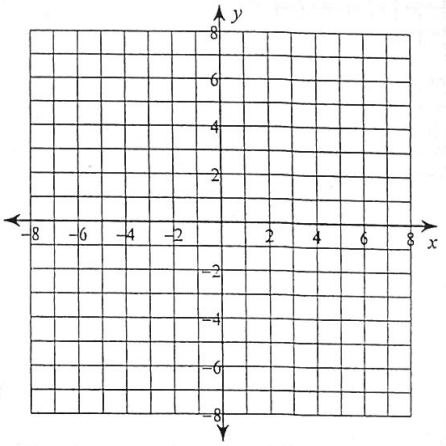
2) $\dfrac{(x+2)^2}{4} - (y-1)^2 = 1$



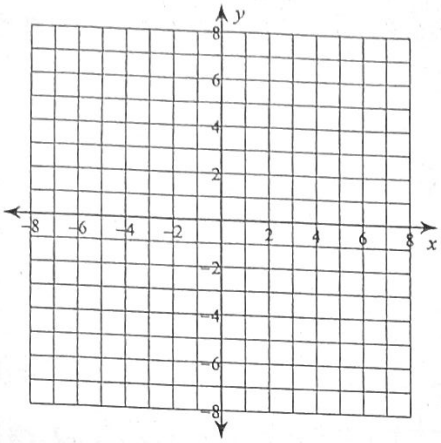
3) $(x-1)^2 + y^2 = 9$



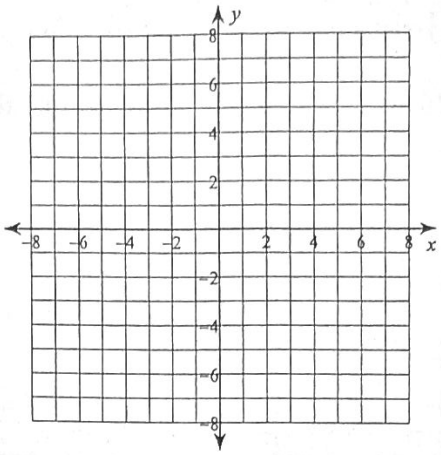
4) $\dfrac{x^2}{49} + (y-6)^2 = 1$



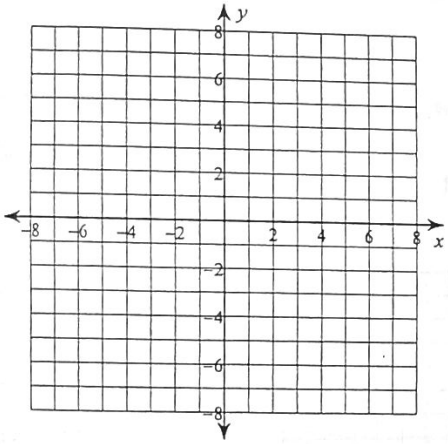
5) $x^2 + y^2 - 2x - 4y - 11 = 0$



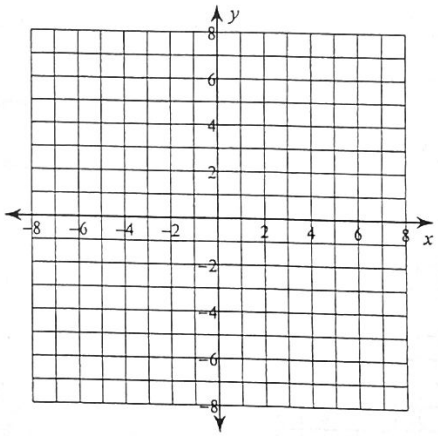
6) $-y^2 + 3x + 8y - 10 = 0$



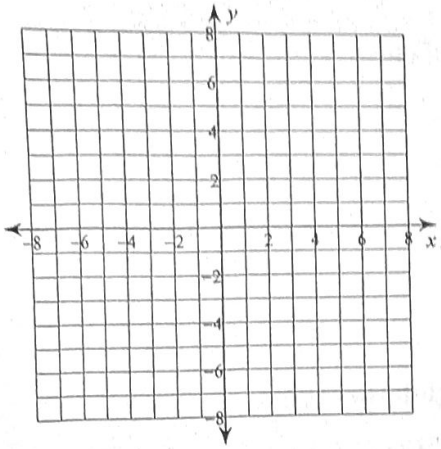
7) $49x^2 + 9y^2 - 392x + 343 = 0$



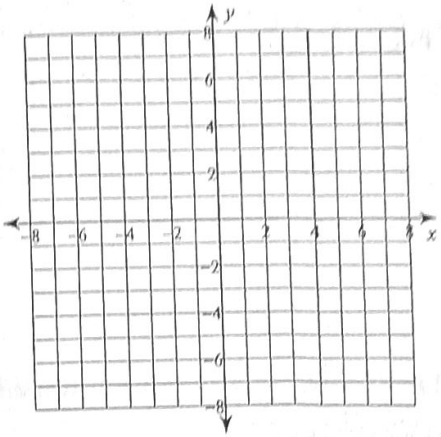
8) $-x^2 + 4y^2 + 6x - 24y + 23 = 0$



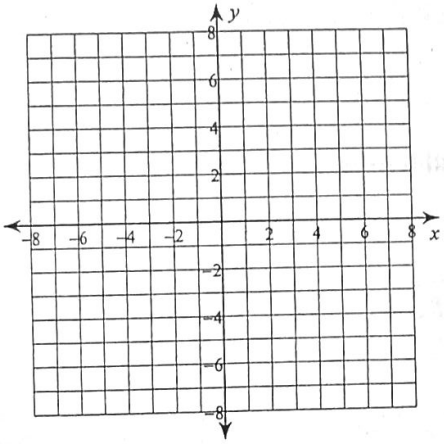
9) $-3x^2 - 36x + y - 104 = 0$



10) $x^2 - y^2 - 2x - 2y - 16 = 0$



11) $25x^2 + 9y^2 - 200x + 175 = 0$



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

12) Center: $(10, 16)$
Point on Circle: $(11, 15)$

13) Center: $(-10, -10)$
Radius: 5

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

14) Vertex: $(8, 0)$, Focus: $\left(8, \frac{1}{12}\right)$

15) Vertex: $(-1, 5)$, Directrix: $x = -\frac{15}{16}$

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

16) Vertices: $(-3, -3), (-3, -11)$
Foci: $(-3, -7 + \sqrt{137}), (-3, -7 - \sqrt{137})$

17) Vertices: $(-3, 7), (-3, -11)$
Asymptotes: $y = \frac{9}{7}x + \frac{13}{7}$
$y = -\frac{9}{7}x - \frac{41}{7}$

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

18) Vertices: $(5, 8), (-13, 8)$
Foci: $(-4 + \sqrt{65}, 8), (-4 - \sqrt{65}, 8)$

19) Center: $(7, 3)$
Vertex: $(0, 3)$
Focus: $(7 + 3\sqrt{5}, 3)$