

Identifying Conic Sections and Rotation of Axes

Period _____

Identify each of the following conic sections, without completing the square, as either a circle, ellipse, parabola, or hyperbola.

1) $25x^2 - 10x - 200y - 119 = 0$

2) $4x^2 + 4y^2 - 16y + 15 = 0$

3) $4x^2 + 3y^2 + 8x - 24y + 51 = 0$

4) $7x^2 - 2y^2 + 14x - 32y - 8 = 0$

5) $4x^2 - 8x + 36y^2 - 72y + 4 = 0$

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

Identify each of the following rotated conic sections as either a circle, ellipse, parabola, or hyperbola.

7) $36x^2 - 60xy + 25y^2 + 9y = 0$

8) $x^2 - 6xy - 5y^2 + 4x - 22 = 0$

9) $16x^2 - 24xy + 9y^2 - 30x - 40y = 0$

10) $2x^2 + 4xy + 5y^2 + 3x - 4y - 20 = 0$

11) $8x^2 + 8xy + 2y^2 + 80x - 60y = 0$

12) $6x^2 - 5xy + 2y^2 + 18x - 13y - 7 = 0$

13) $3x^2 + 8xy + 4y^2 - 7 = 0$

14) $x^2 + 3xy + y^2 + 2x - 8y + 3 = 0$

Identify each of the following conic sections as either a circle, ellipse, parabola, or hyperbola. Also, determine the angle through which the axes are rotated (radians and degrees)

Exact if possible

15) $8x^2 + xy + 7y^2 + 3x - 2y - 1 = 0$

16) $-3\sqrt{3}x^2 - 3xy - 6\sqrt{3}y^2 - 5 = 0$

17) $9x^2 - 12xy + 4y^2 + x - y - 12 = 0$

18) $9x^2 - 2\sqrt{3}xy + 7y^2 - 8x + 2y - 54 = 0$

19) $5\sqrt{3}x^2 - 6xy + 7\sqrt{3}y^2 + 7 = 0$

20) $2x^2 - 3xy - 4y^2 + 5x - 6y - 7 = 0$

21) $5x^2 + 7xy + 5y^2 - 6x + 4y - 1 = 0$

22) $2\sqrt{3}x^2 - 4xy - 2\sqrt{3}y^2 - 85 = 0$

23) $13x^2 + 72xy - 11y^2 - 5x + 7y - 11 = 0$

24) $x^2 - 6xy + 9y^2 - 2y + 1 = 0$