Classifying a Conic Section (in Standard Form)

✎ *Classify each conic section and write its equation in standard form.*

1) $x^2 - 4y^2 + 6x - 8y + 1 = 0$

2) $3x^2 + 3x + y + 79 = 0$

3) $x^2 + y^2 + 4x - 2y - 18 = 0$

4) $-y^2 + x + 8y - 17 = 0$

5) $49x^2 + 9y^2 + 392x + 343 = 0$

6) $-9x^2 + y^2 - 72x - 153 = 0$

7) $-2y^2 + x - 20y - 49 = 0$

8) $-x^2 + 10x + y - 21 = 0$

✎ *Classify each conic section. (Not in Standard Form)*

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

10) $y = 6x^2 - 60x + 149$

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

12) $x^2 - 2x - 36y^2 - 360y - 935 = 0$

13) $y = 6x^2 - 60x + 149$

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

15) $x^2 + y^2 + 6x + 10y + 33 = 0$

16) $x^2 - 4x - 36y^2 + 288y - 608 =$

0

17) $9x^2 + 4y^2 + 16y - 128 = 0$

18) $x^2 + 8x - 25y^2 + 50y - 34 = 0$

19) $y = 6x^2 + 60x + 155$

20) $4x^2 + 9y^2 - 54y + 45 = 0$

21) $-9x^2 - 54x + 4y^2 - 40y - 125 = 0$

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

Answers

Classifying a Conic Section

1) Hyperbola, $\frac{(x+3)^2}{4} - (y+1)^2 = 1$

2) Parabola, $y = -3(x+5)^2 - 4$

3) Circle, $(x+2)^2 + (y-1)^2 = 23$

4) Parabola, $x = (y-4)^2 + 1$

5) Ellipse, $\frac{(x+4)^2}{9} + \frac{y^2}{49} = 1$

6) Hyperbola, $\frac{y^2}{9} - (x+4)^2 = 1$

7) Parabola, $x = 2(y+5)^2 - 1$

8) Parabola, $y = (x-5)^2 - 4$

9) Circle

10) Parabola

11) Ellipse

12) Hyperbola

13) Parabola

14) Circle

15) Circle

16) Hyperbola

17) Ellipse

18) Hyperbola

19) Parabola

20) Ellipse

21) Hyperbola

22) Ellipse