

Math 103: College Algebra and Trigonometry
Recommended Chapter 11 homework

In each of the following problems, identify what type of conic (point, line, circle, ellipse, parabola, or hyperbola) the equation represents, and identify at least two additional properties of the graph of the equation.

1. $3x + 2y - 5 = 6x$
2. $4x^2 - y^2 - 24x - 4y + 16 = 0$
3. $\frac{(x-3)^2}{4} + \frac{(y+1)^2}{9} = 1$
4. $x^2 + y^2 = 0$
5. $x^2 + 4x + 4y^2 - 8y + 4 = 0$
6. $2(x-3) = 3(y-2)$
7. $4x^2 - y^2 = 16$
8. $(x+5)^2 + 4(y-4)^2 = 16$
9. $\frac{x^2}{25} - \frac{y^2}{9} = 1$
10. $4y + 5 = 3x$
11. $x^2 - 4x = y + 4$
12. $\frac{x}{3} + y = 2$
13. $(x+4)^2 - 9(y-3)^2 = 9$
14. $y^2 - 4y + 4x + 4 = 0$
15. $9x^2 + y^2 - 18x = 0$
16. $(x+4)^2 = 16(y+2)$

In each of the following problems, convert the given rectangular equation into an equivalent polar equation. For extra practice, identify what type of conic the equation represents, and give at least two additional properties of the graph of the equation.

17. $3x = x^2 + y^2$
18. $y = 5x - 3$
19. $9x^2 + y^2 - 18x = 0$
20. $x^2 + 8x = 4y - 8$
21. $32 - 2y^2 = 2x^2$
22. $x^2 - y^2 - 2x - 2y - 1 = 0$