

Algebra II Chapter 10 Review 2

Write the equation of each:

1. Ellipse w/vertices at (-5, 1) and (-1, 1) and co-vertices at (-3, 2) and (-3, 0).
2. Hyperbola with vertices at (-1, 3) and (5, 3) and foci at (-3, 3) and (7, 3).
3. Circle with radius 8 and center at (-2, 1).
4. Parabola with vertex at (2, 4) and focus at (2, 2).

Classify each conic section.

5. $8x^2 + 2x - 2x^2 + 16y - 25 = 0$
6. $x^2 - 2x + 10y + 9 = 0$
7. $4x^2 - 6x + y^2 + 4y = 0$
8. $3x^2 - 2y + 3y^2 + 4x - 1 = 0$
9. $5x^2 - 5y + 2y + 10 = 0$

Sketch a graph of each and find all important values (focus, directrix, vertices, etc.)

10. $y = \frac{1}{2}x^2$
11. $(x - 4)^2 + (y + 2)^2 = 7$
12. $y^2 - 16(x + 1)^2 = 64$
13. $4(x + 5)^2 + (y - 1)^2 = 16$

Answers

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|---|--------------|---|
| 1) $\frac{(x+3)^2}{4} + \frac{(y-1)^2}{1} = 1$ | 5) Hyperbola | 9) none |
| 2) $\frac{(x-2)^2}{9} - \frac{(y-3)^2}{16} = 1$ | 6) parabola | 10) V(0,0) F(0, $\frac{1}{2}$), dir $y = -\frac{1}{2}$ |
| 3) $(x+2)^2 + (y-1)^2 = 64$ | 7) ellipse | 11) Circle, center (4, -2) $r = \sqrt{7}$ |
| 4) $y = -\frac{1}{8}(x-2)^2 + 4$ | 8) circle | 12) hyp F(-1, $\pm\sqrt{68}$), V(-1, ± 8) C(-1,0) |
| 13) ellip C(-5,1) V(-5,3),(-5,5) Co-v(-3,1), (-7,1) F(-5, $1 \pm \sqrt{12}$) | | |