Conic Review #2

Describe the equation (line, parabola, circle, ellipse, or hyperbola).

1. $4x - y^2 = 2y + 3$
2. $y^2 - 5x + 6 = 4x^2 + 2y$
3. $3y^2 - x + 6y + 3x^2 - 7 = 0$
4. $(x - 9)^2 = 4 - (y + 1)^2$
5. $y - 5 = 4(x + 1)$

Put each in standard form.

6. $2x^2 + 2y^2 - 6x + 2y - 2 = 0$
7. $3x^2 + 2y - 6x + 1 = 0$
8. $2y^2 - 8y + 6x - 3x^2 + 2 = 0$

Find the real solutions of the system.

9. $\begin{array}{l} x^2 + y^2 = 17 \\ x^2 - 2y = 9 \end{array}$

In standard form, write the equation of the conic described.

10. Circle with endpoints of a diameter (3,-4) and (6,2).
11. Ellipse with vertices (3,4) and (3,-6) and co-vertices (5,-1) and (1,-1).
12. Hyperbola with vertices (0,4) and (-2,4) and co-vertices (-1,2) and (-1,6).
13. A standard parabola that opens left and has vertex (3,-1).

State the center, vertices, and co-vertices (or radius).

14. $\frac{(x-5)^2}{6} + \frac{(y+4)^2}{9} = 1$
15. $\frac{(y-1)^2}{2} - \frac{(x-2)^2}{4} = 1$
16. $(x + 9)^2 + (y - 3)^2 = 8$

1. P

2. H

3. C

4. C

5. L

6. $\left(x - \frac{3}{2}\right)^2 + \left(y + \frac{1}{2}\right)^2 = \frac{7}{2}$

7. $y - 1 = -\frac{3}{2}(x - 1)^2$

8. $\frac{(y-2)^2}{\frac{3}{2}} - (x - 1)^2 = 1$

9. $(1, -4)(-1, -4)(\sqrt{13}, 2)(-\sqrt{13}, 2)$

10. $\left(x - \frac{9}{2}\right)^2 + (y + 1)^2 = \frac{45}{4}$

11. $\frac{(x-3)^2}{4} + \frac{(y+1)^2}{25} = 1$

12. $(x + 1)^2 - \frac{(y-4)^2}{4} = 1$

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

14. $C(5, -4)v(5, -1)(5, -7)$

$cv(5 + \sqrt{6}, -4)(5 - \sqrt{6}, -4)$

15. $C(2,1)v(2, 1 + \sqrt{2})(2, 1 - \sqrt{2})cv(0,1)(4,1)$

16. $C(-9,3)\ r = 2\sqrt{2}$