

You may need to use additional paper.

1. Write the definition of each of the following:

circle

ellipse

parabola

hyperbola

2. Find the center and radius for the following:

$$x^2 + y^2 = 25$$

$$3x^2 + 3y^2 = 60$$

$$-5x^2 - 5y^2 = -100$$

3. Find the focus and directrix for the following:

$$x^2 = 12y$$

$$2y^2 = 32x$$

$$\frac{1}{3}x^2 + 5y = 0$$

4. Find the vertices, co-vertices, and foci for the following:

$$\frac{x^2}{144} + \frac{y^2}{49} = 1$$

$$25x^2 + 49y^2 = 1225$$

$$\frac{25x^2}{4} + \frac{25y^2}{9} = 1$$

5. Find the vertices, foci, and asymptotes for the following:

$$\frac{x^2}{64} - \frac{y^2}{121} = 1$$

$$\frac{x^2}{1} - \frac{y^2}{81} = -1$$

$$-2x^2 + 8y^2 = 32$$

6. Write the equation of the circle with center at the origin with a radius of 7.
7. Write the equation of the parabola with the origin as its' vertex and with directrix $y = -3$.
8. Write the equation of the circle with center at the origin at passes through the point (4, -2).
9. Write the equation of the ellipse with center at the origin and a vertex at (0,4) and a co-vertex at (-3,0)
10. Write the equation of the circle with center at the origin with radius of $3\sqrt{5}$.
11. Write the equation of a parabola that opens up with vertex at the origin and passes through the point (5,10).
12. Write the equation of the ellipse with center at the origin and has a vertex at (-8,0) and a focus at (5,0).
13. Write the equation of the hyperbola with center at the origin and vertex at (0,5) and focus at (0, -13).
14. What is the area of the following.

$$x^2 + y^2 = 9$$

$$5x^2 + 5y^2 = 30$$

$$\frac{x^2}{169} + \frac{y^2}{196} = 1$$