

## Ellipse – Center Form

Identify the center, vertices and foci

Ex.  $9(x + 1)^2 + 4(y - 5)^2 = 36$

$$\frac{9(x+1)^2}{36} + \frac{4(y-5)^2}{36} = 1$$
$$\frac{(x+1)^2}{4} + \frac{(y-5)^2}{9} = 1$$
$$\frac{(x+1)^2}{2^2} + \frac{(y-5)^2}{3^2} = 1$$

Center  $(-1, 5)$

Major axis;  $a=3$ , Minor axis  $b = 2$

$V(-1,8), V(-1,2)$

Foci;  $c^2 = a^2 - b^2; \sqrt{5}$

$(-1, 5 + \sqrt{5}), (-1, 5 - \sqrt{5})$

Find the center, vertices, and foci.

1.  $\frac{x^2}{4^2} + \frac{y^2}{3^2} = 1$

1a.  $\frac{x^2}{5^2} + \frac{y^2}{4^2} = 1$

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

2a.  $\frac{x^2}{6^2} + \frac{y^2}{2^2} = 1$

3.  $x^2 + 4y^2 = 100$

3a.  $9x^2 + 3y^2 = 9$

4.  $36x^2 + 4y^2 = 144$

4a.  $4x^2 + 16y^2 = 64$

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

5a.  $\frac{(x+2)^2}{10^2} + \frac{(y-1)^2}{6^2} = 1$