# Ellipses

January 3, 2024

**Problem 2 Solutions:**

(a) $\frac{x^2}{36} + \frac{y^2}{9} = 1$

(b) $\frac{x^2}{9} + \frac{y^2}{36} = 1$

(c) $\frac{x^2}{9} + \frac{y^2}{1} = 1$

(d) $\frac{x^2}{49} + \frac{y^2}{45} = 1$

(e) $\frac{x^2}{15} + \frac{y^2}{64} = 1$

**Problem 3 Solutions:**

(a) $\frac{(x-6)^2}{16} + \frac{y^2}{4} = 1$

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

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

**Problem 4 Solutions:**

(a) Center: (0,0), Vertices: ($\pm$5,0), (0,$\pm$4), Foci: ($\pm$3,0), Eccentricity: 0.6

(b) Center: (0,0), Vertices: ($\pm$4,0), (0,$\pm$9), Foci: (0,$\pm$8.94), Eccentricity: 0.994

(c) Center: (4,-1), Vertices: (4,$\pm$5), (8,-1), (0,-1), Foci: (4,$\pm$4.47), Eccentricity: 0.894

(d) Center: (5,1), Vertices: (5,$\pm$1.5), (7.5,1), (2.5,1), Foci: (5,1), Eccentricity: 0

(e) Center: (-3,3), Vertices: ($\pm$3,3), (0,3), Eccentricity: 0.6

**Problem 5 Solution:**

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