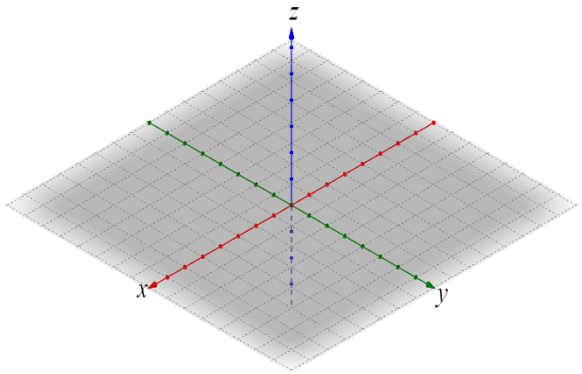
Precalculus

11-01 3-D Coordinate System

Points in 3 dimensions

- (x, y, z)
- Graph by moving out the _____, over the _____, then up the _____.

Graph A(5, 6, 3) and B(−2, −4, 0)



Distance Formula

$$\boldsymbol{d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}}$$

Midpoint Formula

$$\boldsymbol{M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}, \frac{z_1 + z_2}{2}\right)}$$

Equation of Sphere

$$\boldsymbol{(x - h)^2 + (y - k)^2 + (z - j)^2 = r^2}$$

Center is (h, k, j), r = radius

- Graph by plotting the _____and moving each direction the _____

Graph $(x - 2)^2 + (y + 1)^2 + (z + 1)^2 = 16$