Chapter 12 Notes

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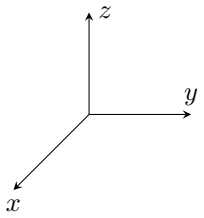
Three-Dimension Coordinate system

We will now use a three dimensional graph as follows:



New Formulas

Distance of two points in 3D:

$$|P_1P_2| = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2 + (z_2 - z_1)^2}$$

Midpoint with 3D:

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

An equation of a sphere with center C(h,k,l) and radius r is:

$$(x - h)^2 + (y - k)^2 + (z - l)^2 = r^2$$