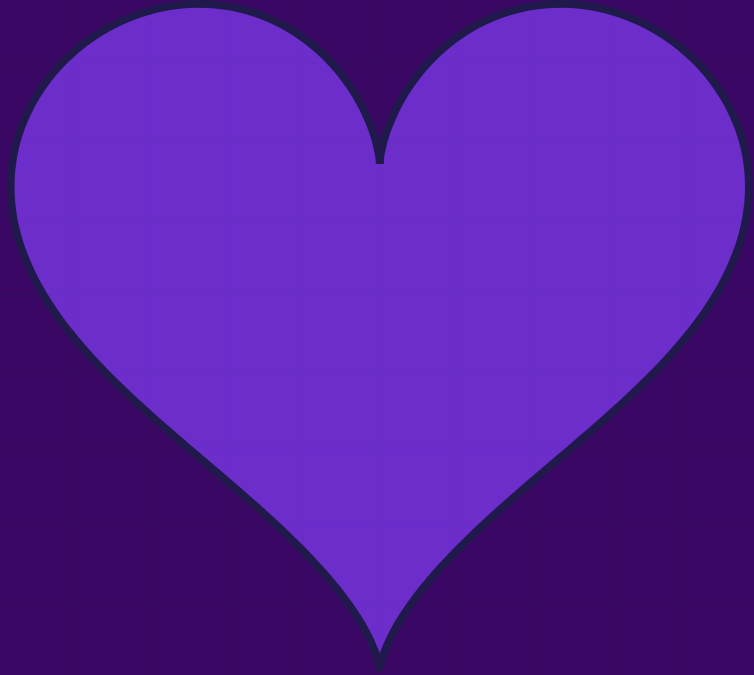


Coordinate geometry



Line; gradient

$$y - y_1 = m(x - x_1), \quad m = \frac{y_2 - y_1}{x_2 - x_1}$$

Perpendicular gradients

$$m_1 m_2 = -1$$

Midpoint; distance

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right), \quad \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Circle, centre (a, b) , radius r

$$(x - a)^2 + (y - b)^2 = r^2$$

Sphere; cone (curved surface, slant l) **B**

$$A = 4\pi r^2; \quad A = \pi r l$$

B given in the exam. Learn the rest.