



Here is a sketch of  $y = 9 - x^2$   
The graph is used to model the cross section of a tunnel.

Calculate an estimate of the area under the graph.

$$A) \frac{1}{2}(9+8) \times 1 = 8.5$$

$$B) \frac{1}{2}(8+5) \times 1 = 6.5$$

$$C) \frac{1}{2} \times 1 \times 5 = 2.5$$

$$+ \underline{17.5}$$

$$17.5 \times 2 = \underline{35}$$

Find the nth term of

$$-12 \quad -9 \quad -4 \quad 3 \dots$$

$$\quad \quad \quad \begin{matrix} 3 & & 5 & & 7 \\ & 2 & & 2 & \end{matrix}$$

$$2a = 2$$

$$a = 1$$

$$3a + b = 3$$

$$3 + b = 3$$

$$b = 0$$

$$a + b + c = -12$$

$$1 + 0 + c = -12$$

$$c = -13$$

$$n^2 - 13$$

Solve the simultaneous equations

$$y = 9x^2 + 11x + 3$$

$$5x - y + 2 = 0$$

$$y = 5x + 2$$

$$5x + 2 = 9x^2 + 11x + 3$$

$$0 = 9x^2 + 6x + 1$$

$$0 = (3x + 1)(3x + 1)$$

$$x = -\frac{1}{3}$$

$$y = \frac{1}{3}$$

Simplify fully

$$\frac{3x^2 + 20x - 7}{16x^2 - 1} \div \frac{x + 7}{4x + 1}$$

$$\frac{(3x-1)(x+7)}{(4x-1)(4x+1)} \times \frac{4x+1}{x+7}$$

$$\frac{3x-1}{4x-1}$$