



Here is a velocity-time graph for 6 seconds of a journey.

Work out an estimate for the distance travelled over 6 seconds. Use 3 strips of equal width.

$$A: \frac{1}{2} (12 \cdot 4 + 11 \cdot 6) \times 2 = 24$$

$$B: \frac{1}{2} (11 \cdot 6 + 9 \cdot 2) \times 2 = 20 \cdot 8$$

$$C: \frac{1}{2} (2 \times 9 \cdot 2) = 9 \cdot 2$$

54 m

Make  $h$  the subject of

$$\sqrt{\frac{r+h}{4rh}} = v \quad \frac{r+h}{4rh} = v^2$$

$$r+h = 4v^2 rh$$

$$r = 4v^2 rh + h$$

$$r = h(4v^2 r - 1)$$

$$h = \frac{r}{4v^2 r - 1}$$

Find the equation of the line that is perpendicular to  $2x + 3y = 4$  and passes through the point  $(9, 0)$

$$3y = -2x + 4 \quad \text{gradient of } l = \frac{3}{2}$$

$$y = -\frac{2}{3}x + \frac{4}{3}$$

$$y = \frac{3}{2}x + c$$

$$0 = \frac{3}{2} \times 9 + c$$

$$c = -\frac{27}{2}$$

$$y = \frac{3}{2}x - \frac{27}{2}$$

Solve

$$8^{4x+1} - 16^{x-1} = 0$$

$$(2^3)^{4x+1} - (2^4)^{x-1} = 0$$

$$2^{12x+3} - 2^{4x-4} = 0$$

$$12x + 3 = 4x - 4$$

$$8x = -7$$

$$x = -\frac{7}{8}$$