

P.26 Q3

$$(a) \quad V = \pi R^2 h$$

$$\pi R^2 h = V$$

$$R^2 = \frac{V}{\pi h}$$

$$R = \sqrt{\frac{V}{\pi h}}$$

$$(b) \quad A = 2\pi r h$$

$$r = \frac{A}{2\pi h}$$

$$(c) \quad \text{Show } A^2 = 4\pi h V$$

$$A^2 = 4\pi^2 (r^2) h^2$$

$$= 4\pi^2 \left(\frac{V}{\pi h} \right) h^2$$

$$= 4\pi h V \quad \text{QED}$$

Q2

x=?

$$(i) \quad 2x - \frac{y}{3} = \frac{1}{3}$$

$$6x - y = 1$$

$$6x = 1 + y$$

$$x = \frac{1+y}{6}$$

$$(ii) \quad z = \frac{y - 2x}{3}$$

$$3z = y - 2x$$

$$3z - y = -2x$$

$$y - 3z = 2x$$

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

Q2

(iii)

$$x = ?$$

$$\frac{a}{x} - b = c$$

$$a - bx = cx$$

$$+bx + cx = +a$$

$$x(b+c) = a$$

$$x = \frac{a}{b+c}$$

Q2
(iii)

$$\frac{a}{x} - b = c$$

$$\frac{a}{x} = \frac{c+b}{1}$$

$$\frac{x}{a} = \frac{1}{c+b}$$

$$x = \frac{a}{c+b}$$

Algebraic identities

$$3x + 7 = ax + b$$

$$(2x+a)^2 = 4x^2 + 12x + b$$

$$a = ?$$

$$b = ?$$

$$4x^2 + 4ax + a^2 = 4x^2 + 12x + b$$

$$4a = 12$$

$$a = 3$$

$$a^2 = b$$

$$9 = b$$

p.23

$$Q1 \quad ax^2 + bx + c = (2x-3)(3x+4)$$

Find a, b and c ?

$$ax^2 + bx + c = 6x^2 + 8x - 9x - 12$$

$$= 6x^2 - 1x - 12$$

$$a = 6$$

$$b = -1$$

$$c = -12$$

$$Q2 \quad (3x-2)(x+5) = 3x^2 + px + q$$

 $p = ?$
 $q = ?$

$$3x^2 + 15x - 2x - 10 = \text{RHS}$$

$$3x^2 + 13x - 10 = \text{RHS}$$

Example p. 20
 (2)

$$3t^2x - 3px + c - 2t^3 = 0$$

$$x(3t^2 - 3p) + (c - 2t^3) = 0$$

$$3t^2 - 3p = 0$$

$$c - 2t^3 = 0 \Rightarrow c = 2t^3$$

$$t^2 - p = 0$$

$$t^2 = p$$

$$t = \sqrt{p}$$

$$c = 2t^3$$

$$c = 2\sqrt{p}^3 \checkmark$$

$$c = 2p^{3/2}$$