ALGEBRA (Q 2 & 3, PAPER 1)

1999

2 (a) Solve for x

$$2(x+8)=7x.$$

(b) Write as a power of 2

(i) 8

(ii) $8^{\frac{4}{3}}$.

Solve for x the equation

$$8^{\frac{4}{3}}=\frac{2^{5x-4}}{\sqrt{2}}.$$

(c) Solve for x

$$\frac{3}{2x-1}=1+\frac{2x}{x+2},\ x\neq\tfrac{1}{2}\ \text{and}\ x\neq -2.$$

3 (a) Express p in terms of q and r when

$$\frac{p-3r}{q}=5,\ q\neq 0.$$

(b) Solve for x and y

$$x+2y=6$$
$$x^2+y^2=17.$$

(c) Show that $6x^2+5x-4$ is a factor of $6x^3+17x^2+6x-8$.

Hence, or otherwise, find the roots of $6x^3+17x^2+6x-8=0$.

ANSWERS

2 (a) $\frac{16}{5}$

(b) (i) 2^3 (ii) 2^4; 1·7

(c) $x=-1,\ \frac{4}{3}$

3 (a) $p = 3r + 5q$

(b) (4, 1), $(-\frac{8}{5}, \frac{19}{5})$

(c) $(-\frac{4}{3}, \frac{1}{2}, -2)$