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ALGEBRA (Q 2 & 3, PAPER 1)

2000

2 (a) Find the value of $5x-3y$ when $x=\frac{5}{2}$ and $y=\frac{2}{3}$.

(b) Solve for x and y

$x-3y=1$

$x^2-y^2=0.$

(c) Write as a power of 3

(i) 243

(ii) $\sqrt{27}$.

Hence, solve for x the equation $\sqrt{3}(3^x)=\left(\frac{243}{\sqrt{27}}\right)^2$.

3 (a) Express p in terms of t and k when

$tp-k=7k,\ t\neq 0.$

(b) (i) Show that $x = 2$ is a root of $3x^3+8x^2-33x+10=0.$

(ii) Find the other roots of $3x^3+8x^2-33x+10=0.$

(c) (i) $f(x)=ax^2+bx-8,$ where a and b are real numbers.

If $f(1)=-9$ and $f(-1)=3,$ find the value of a and the value of b.

(ii) Using your values of a and b from **(i)**, find the two values of x for which

$ax^2+bx=bx^2+ax.$

ANSWERS

2 (a) $\frac{21}{2}$

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

(c) (i) 3^5 (ii) $3^{\frac{3}{2}}$; $x=\frac{13}{2}$

3 (a) $p=\frac{8k}{t}$

(b) (ii) $x=-5, \frac{1}{3}$

(c) (i) $a=5, b=-6$ (ii) $x = 0, 1$