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ALGEBRA (Q 2 & 3, PAPER 1)

2004

2 (a) Find the value of $3(2p-q)$ when $p=-4$ and $q=5$.

(b) (i) Solve $2x^2-7x+3=0$.

(ii) Show that $x-2$ is a factor of x^3-3x^2-x+6.

(c) (i) Evaluate $8^{\frac{1}{3}}$.

(ii) Express $4^{\frac{1}{4}}$ in the form 2^k, $k \in \mathbf{Q}$.

(iii) Solve for x the equation

$(8^{\frac{1}{3}})(4^{\frac{1}{4}}) = 2^{5-x}$.

3 (a) Solve for x

$2x = 3(5-x)$.

(b) Solve for x and y

$x+y=1$

$x^2+y^2=13$.

(c) p is a positive number and f is the function $f(x)=(2x+p)(x-p)$, $x \in \mathbf{R}$.

(i) Given that $f(2) = 0$, find the value of p.

(ii) Hence, find the range of values of x for which $f(x) < 0$.

ANSWERS

2 (a) -39

(b) (i) $x=\frac{1}{2}, 3$

(c) (i) 2 (ii) $2^{\frac{1}{2}}$ (iii) $x=\frac{7}{2}$

3 (a) $x = 3$

(b) (i) $(3,-2),(-2,3)$

(c) (i) $p = 2$ (ii) $-1 < x < 2$