# ALGEBRA (Q 2 & 3, PAPER 1)

## 2001

2 (a) Find the solution set of $11-2n>3,\ n\in\mathbf{N}$.

(b) Solve for $x$ and $y$

$x+2y=3$

$x^2-y^2=24.$

(c) Solve each of the following equations for $p$

(i) $9^p=\dfrac{1}{\sqrt{3}}$

(ii) $2^{3p-7}=2^6-2^5.$

3 (a) Given that $u^2+2as=v^2,$ calculate the value of $a$ when $u$ = 10, $s$ = 30 and $v$ = 20.

(b) (i) Simplify $(x+\sqrt{x})(x-\sqrt{x})$ when $x>0$.

(ii) Hence, or otherwise, find the value of $x$ for which $(x+\sqrt{x})(x-\sqrt{x})=6.$

(c) Let $f(x)=x^3+ax^2+bx-6$ where $a$ and $b$ are real numbers.
Given that $x-1$ and $x-2$ are factors of $f(x)$

(i) find the value of $a$ and the value of $b$

(ii) hence, find the values of $x$ for which $f(x)=0$.

**ANSWERS**

2 (a) $n<4$ or $\{0, 1, 2, 3\}$

(b) $(-7,5), (5,-1)$

(c) (i) $p=-\frac{1}{4}$ (ii) $p=4$

3 (a) $a=5$

(b) (i) $x^2-x$ (ii) $x=-2, 3$

(c) (i) $a=-6,\ b=11$ (ii) $x=1, 2, 3$