## The Line (Q 2, Paper 2)

2003
2 (a) Find the distance between the two points (3,2) and ( 8,14 ).
(b) $a(-2,2), b(4,6)$ and $c(0,-4)$ are three points.
$p$ is the midpoint of $[a b]$ and $q$ is the midpoint of $[a c]$.
(i) Find the co-ordinates of $p$ and the co-ordinates of $q$.
(ii) Plot $a, b, c, p$ and $q$ on a co-ordinate diagram on graph paper.

Show the line segments $[b c]$ and $[p q]$ on your diagram.
(iii) Using slopes, or otherwise, prove that $p q$ is parallel to $b c$.
(c) $L$ is the line $3 x+2 y+12=0$.
$K$ is the line that passes through the point $(7,3)$ and is perpendicular to $L$. Find the equation of $K$ and hence find the point of intersection of $K$ and $L$.

## Answers

$2 \quad$ (a) 13
(b) (i) $p(1,4), q(-1,-1)$
(ii)
(iii) Slope of $p q=$ Slope of $a b=\frac{5}{2}$
(c) $2 x-3 y-5=0,(-2,-3)$


