## The Line (Q 2, Paper 2)

## 1998

2 (a) The point $(-3,4)$ is on the line whose equation is $5 x+y+k=0$. Find the value of $k$.
(b) $a(2,-1), b(-2,3), c(-1,-1)$ and $d(4,-6)$ are points.
(i) Show that $a b$ is parallel to $c d$.
(ii) Investigate if $a b c d$ is a parallelogram.

Give a reason for your answer.
(c) The equation of the line L is $x-2 y+10=0$.
$L$ contains the point $t(2,6)$.
(i) Find the equation of the line $N$ which passes through $t$ and which is perpendicular to $L$.
(ii) The line $N$ cuts the $x$-axis at $r$ and it cuts the $y$-axis at $s$. Calculate the ratio

$$
\frac{|r t|}{|t s|} .
$$

Give your answer in the form $\frac{p}{q}$, where $p$ and $q$ are whole numbers.

## Answers

2 (a) $k=11$
(b) (ii) It is not a parallelogram because $a d$ is not parallel to $b c$.
(c) (i) $2 x+y-10=0$
(ii) $\frac{3}{2}$

