FOUNDATION & HIGHER

HIGHER EXTENDS

Name ..... Class .....

A9: Straight-line graphs

Solve problems using equations of straight lines

20 marks · 25 minutes · Non-calculator

1) A line is parallel to $y = 3x + 4$ and passes through (2, 1). Where does it cross the x-axis?

.....

[Question 1: 3 marks]

2) The lines $y = 2x + 1$ and $y = -x + 7$ meet at P. Find P and the area of the triangle formed by the two lines and the y-axis.

.....

[Question 2: 4 marks]

3) A is $(1, 1)$ and B is $(5, 3)$. Find the equation of the perpendicular bisector of AB.

.....

[Question 3: 4 marks]

4) Is the triangle with vertices $(0,0)$, $(4,2)$ and $(-1,2)$ right-angled? Show your working.

.....

[Question 4: 3 marks]

5) A line passes through $(1,4)$ and $(3,10)$. Where does it cross the line $y = 1$?

.....

[Question 5: 3 marks]

6) $(k, 11)$ lies on the line through $(1, 3)$ and $(3, 7)$. Find k.

.....

[Question 6: 3 marks]

End of paper – 20 marks in total

Answers and brief mark scheme

Q	Answer	Method / notes
1	$\left(\frac{5}{3}, 0\right)$	$y = 3x + c$, $c = -5$ (P1, P1); A1.
2	$P(2, 5)$; 6	$2x + 1 = -x + 7$ (P1); P (A1); base 6 on y-axis, height 2 (P1); 6 (A1).
3	$y = -2x + 8$	Midpoint (3, 2) (P1); gradient of AB $\frac{1}{2}$ (P1); perpendicular -2 (P1); A1.
4	Yes	Gradients $\frac{1}{2}$ and -2 (P1, P1); product -1, right angle at origin (C1).
5	(0, 1)	Gradient 3 (P1); $y = 3x + 1$ (P1); A1.
6	5	Gradient 2 (P1); $y = 2x + 1$ (P1); A1.