### Lesson 3

## A-Level Pure Mathematics, Year 1 Additional Mathematics GCSE Coordinate Geometry

### 3.1 Short Questions Homework

Any solution based entirely on graphical or numerical methods is not acceptable Marks Available : 30

## **Question 1**

Find the length of the line segment between A(2, 9) and B(3, 12)

[ 2 marks ]

## **Question 2**

Determine the gradient of the line through the points A(4, 3) and B(8, 11)

#### [ 2 marks ]

#### **Question 3**

A line has a gradient of  $\frac{5}{7}$  and cuts the y-axis at the point  $\left(0, \frac{9}{7}\right)$ Write the equation of the line in the form y = mx + c, where *m* and *c* are constants.

[ 2 marks ]

#### **Question 4**

A line has equation 3y + 4x + 6 = 0Find (i) the gradient and (ii) the *y*-intercept of the line

[ 2 marks ]

# **Question 5**

Find the equation of the line with gradient  $\frac{1}{2}$  which passes through (3, 2)

[ 3 marks ]

# **Question 6**

Find the equation of the line that passes through (  $2,\,-1$  ) and (  $3,\,\,7$  )

[ 3 marks ]

# **Question 7**

Find the	e coordinates of the point where the line $y = -2x - 7$ cuts	
(i)	the y-axis	
		[ 1 mark ]
( ii )	the <i>x</i> -axis	
		[ 1 mark ]

# **Question 8**

For each of the following lines, decide if the point (4, 8) is on the line, or not.

(i)	y = 2x	[ 1 mark ]
(ii)	y = x + 4	[ 1 mark ]
( iii )	y = 5x - 12	[ 1 mark ]
( <b>iv</b> )	y = -2x - 8	[ 1 mark ]

### **Question 9**

Find the equation of the line with gradient 3 that passes through the point (1, -0.5)

[ 3 marks ]

Question 10

Find the equation of the straight line through (-1, 4) and (2, 3)

[ 3 marks ]

### **Question 11**

The lines with equations 5x + 6y = 45 and 3y - x - 5 = 0 meet at the point *A*. Find an equation of the line through *A* whose gradient is 2.

[4 marks]

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Teachers may obtain detailed worked solutions to the exercises by email from mhh@shrewsbury.org.uk