1 *OAB* is a triangle.

$\overrightarrow{OA} = \mathbf{a}$ $\overrightarrow{OB} = \mathbf{b}$

The point *C* lies on *OA* such that *OC* : *CA* = 1 : 2
The point *D* lies on *OB* such that *OD* : *DB* = 1 : 2

Using a vector method, prove that *ABDC* is a trapezium.

(Total for Question 1 is 3 marks)

2 The diagram shows triangle OAB with OA extended to E

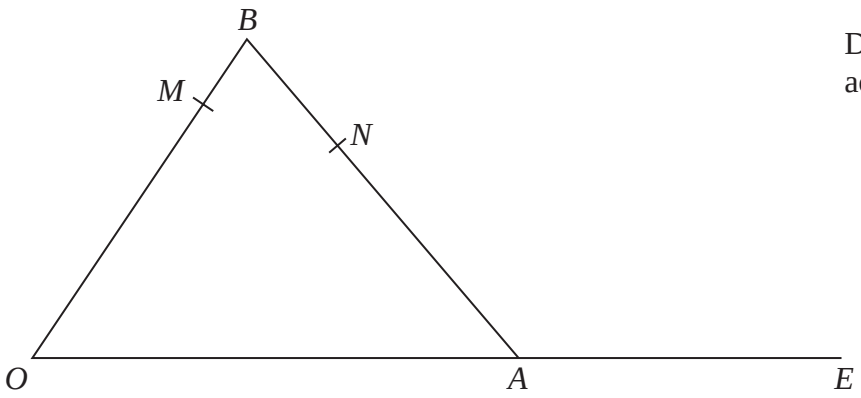

Diagram **NOT** accurately drawn

$\overrightarrow{OA} = \mathbf{a}$ $\overrightarrow{OB} = \mathbf{b}$

M is the point on OB such that $OM : MB = 4 : 1$
N is the point on AB such that $AN : NB = 3 : 2$
$OA : AE = 5 : 3$

(b) Use a vector method to show that MNE is a straight line.

(3)

(Total for Question 2 is 3 marks)

(b) Use a vector method to show that *MNE* is a straight line.

(3)

(Total for Question 22 is 5 marks)