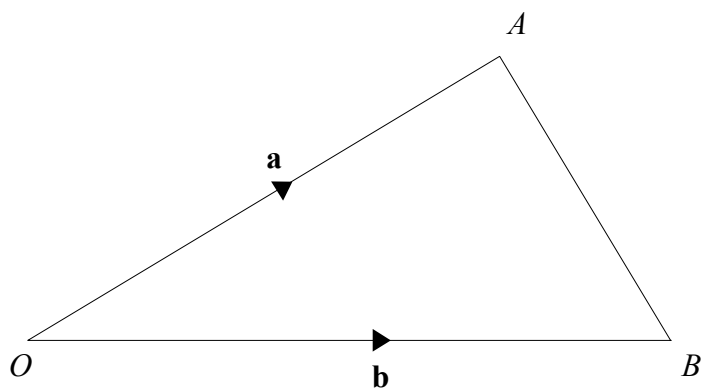


1



$$\vec{OA} = \mathbf{a}$$

$$\vec{OB} = \mathbf{b}$$

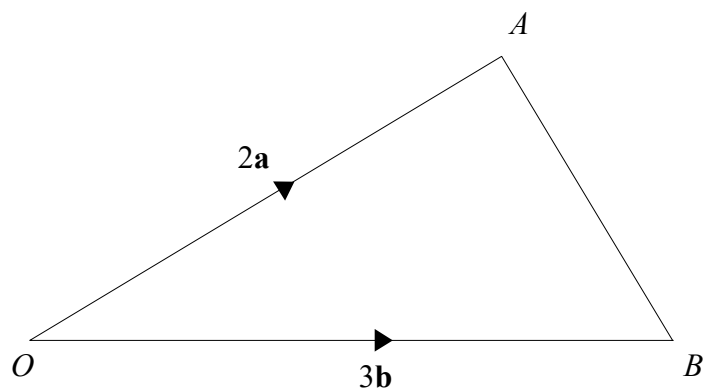
P is the point on AB such that AP:PB = 1:3

$$\vec{OP} = k(3\mathbf{a} + \mathbf{b})$$

Find the value of k

.....
(Total for question 1 is 4 marks)

2



$$\overrightarrow{OA} = 2\mathbf{a}$$

$$\overrightarrow{OB} = 3\mathbf{b}$$

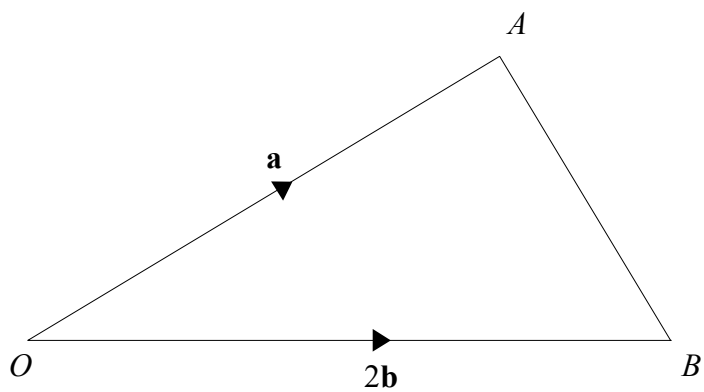
P is the point on AB such that $AP:PB = 3:2$

$$\overrightarrow{OP} = k(4\mathbf{a} + 9\mathbf{b})$$

Find the value of k

.....
(Total for question 2 is 4 marks)

3



$$\vec{OA} = \mathbf{a}$$

$$\vec{OB} = 2\mathbf{b}$$

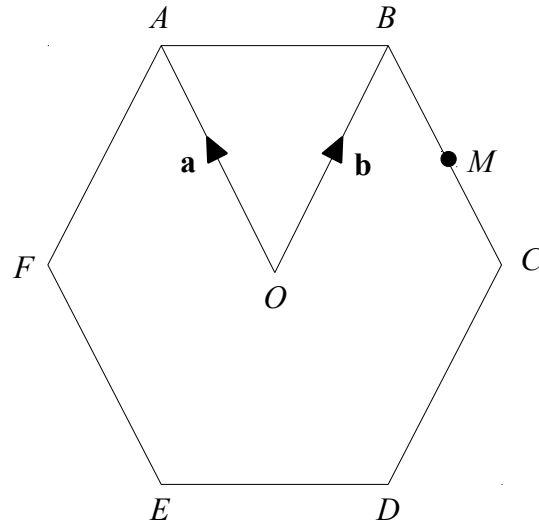
P is the point on AB such that AP:PB = 3:2

$$\vec{OP} = k(\mathbf{a} + 3\mathbf{b})$$

Find the value of k

.....
(Total for question 3 is 4 marks)

4 $ABCDEF$ is a regular hexagon with centre O .



$$\vec{OA} = \mathbf{a}$$

$$\vec{OB} = \mathbf{b}$$

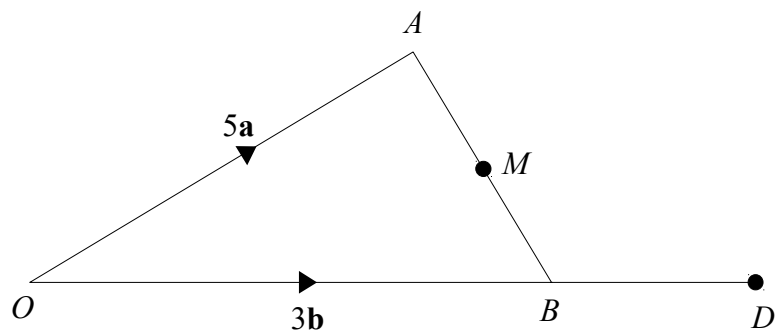
M is the midpoint of BC .

X is the point on AB extended, such that $AB:BX = 3:2$

Prove that E , M and X are on the same straight line.

(Total for question 4 is 5 marks)

5



$$\vec{OA} = 5\mathbf{a}$$

$$\vec{OB} = 3\mathbf{b}$$

C is the point such that $OC:CA = 4:1$

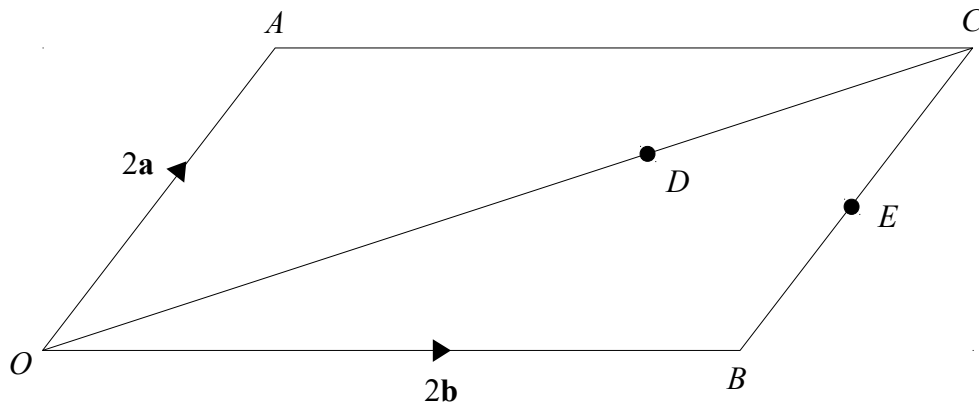
M is the midpoint of AB

D is the point such that $OB:OD = 3:4$

Show that C , M and D are on the same straight line.

(Total for question 5 is 5 marks)

6 The diagram shows a parallelogram.



$$\vec{OA} = 2\mathbf{a}$$

$$\vec{OB} = 2\mathbf{b}$$

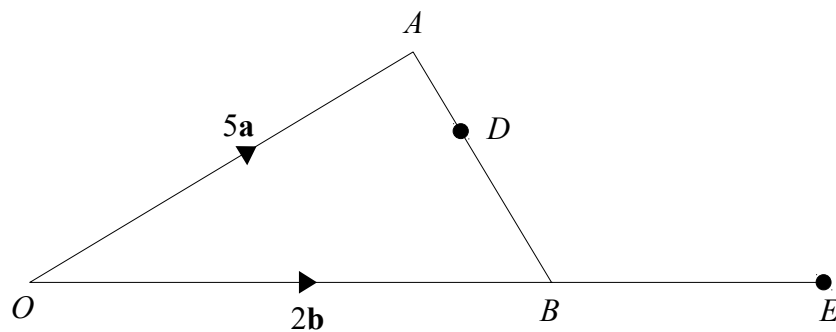
D is the point on OC such that $OD:DC = 2:1$

E is the midpoint of BC

Show that A, D and E are on the same straight line.

(Total for question 6 is 4 marks)

7



$$\vec{OA} = 5\mathbf{a}$$

$$\vec{OB} = 2\mathbf{b}$$

C is the point on OA such that $OC:CA = 4:1$

D is the point such that $AD:DB = 1:2$

The line OB is extended to point E

Given that C, D and E are on the same straight line find $\vec{BE}$

.....
(Total for question 7 is 5 marks)