

# Vector in Two Dimensions

Name:

Class: 11

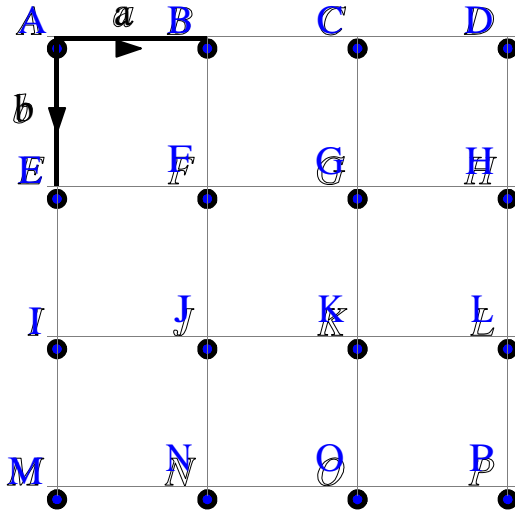
Date: 03/02/2018

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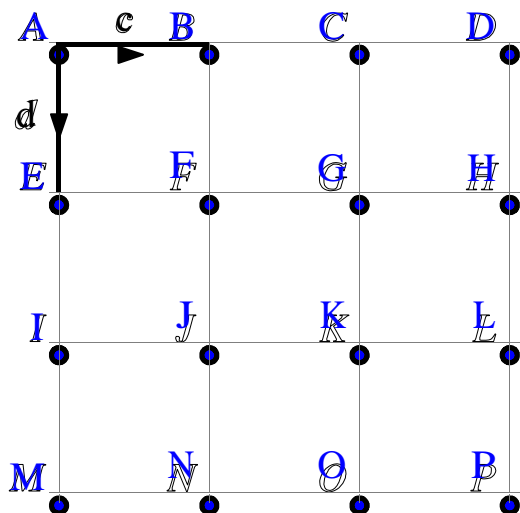
1) Using the diagram below, express the vector  $\vec{ML}$  in terms of  $\vec{a}$  and  $\vec{b}$ .

[1]

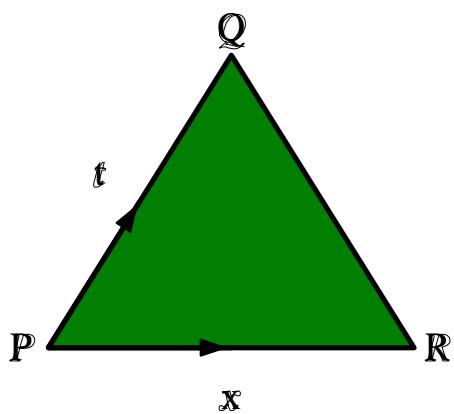


2) Find the vector formed when the vector  $2d-3c$  is added to point D.  
Write the vector as capital letters e.g. AB.

[1]



3) Triangle PQR is shown below where  $PQ = t$  and  $PR = x$ .



Express the following vectors in terms of  $t$  and  $x$ .

a)  $PQ$

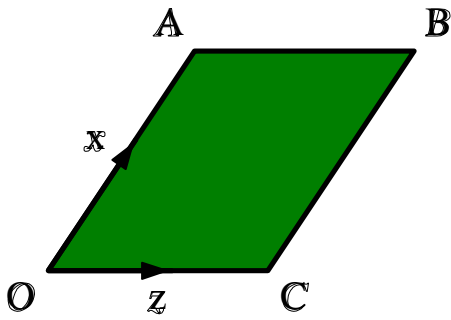
b)  $RP$

c)  $QR$

d)  $RQ$

[1]

4) OABC is a parallelogram where  $OA = x$  and  $OC = z$ .

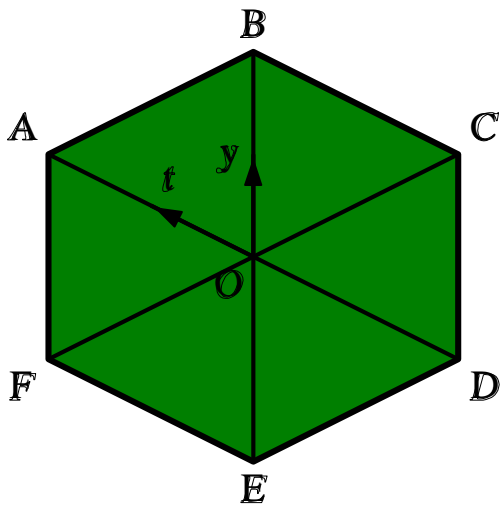


Express the following vectors in terms of  $x$  and  $z$ .

- a)  $AB$                       b)  $BC$                       c)  $OB$                       d)  $AC$

[1]

5) ABCDEF is a regular hexagon where  $OA = t$  and  $OB = y$ .

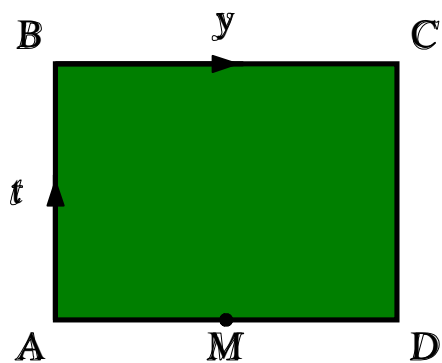


Express the following vectors in terms of  $t$  and  $y$ .

- a)  $AB$                       b)  $DB$                       c)  $OC$                       d)  $FD$

[1]

6) ABCD is a rectangle where  $AB = t$ ,  $BC = y$  and M is the mid-point of AD.



Express the following vectors in terms of  $t$  and  $y$ .

a)  $\vec{AM}$

b)  $\vec{BM}$

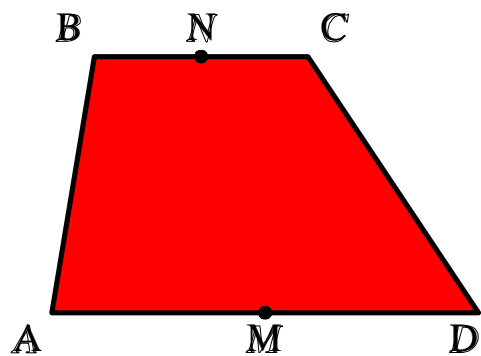
c)  $\vec{MC}$

[1]

7) ABCD is a trapezium with BC parallel to AD.  
M is the midpoint of AD and N is the midpoint of BC.

[1]

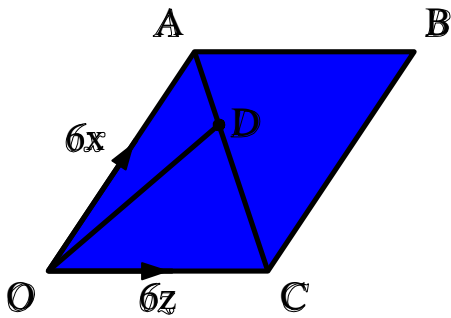
Given that  $AB = 2c$ ,  $BC = 2a$  and  $AD = 6a$ , express  $\vec{MN}$  in terms of  $a$  and  $c$ .



8) OABC is a parallelogram where  $OA = 6x$  and  $OC = 6z$ .

[1]

D is the point on AC for which  $AD = \frac{1}{3}AC$ .



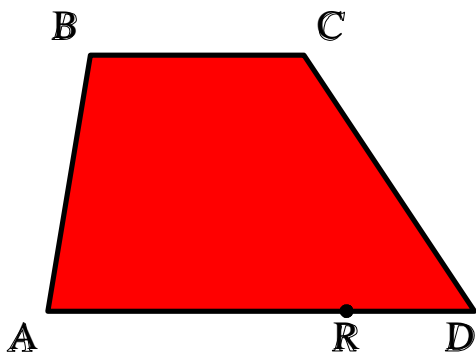
Express OD in terms of  $x$  and  $z$ .

9) ABCD is a trapezium with BC parallel to AD and  $AD = 2BC$ .

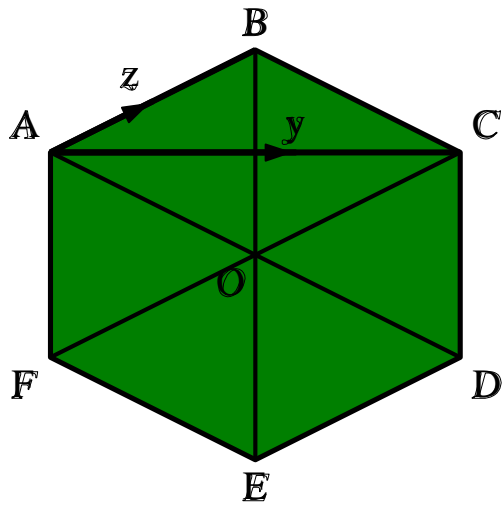
[1]

R is the point on AD for which  $AR:RD = 3:1$ .

Given that  $AB = z$  and  $BC = k$ , express RC in terms of  $z$  and  $k$ .



10) ABCDEF is a regular hexagon where  $AB = z$  and  $AC = y$ .



Express the following vectors in terms of  $z$  and  $y$ .

a)  $BE$

b)  $CE$

[1]