27th April **Higher Plus 5-a-day**

Corbettmaths

C = 20000 to 3 significant figures 19950
M = 0.24 to 2 significant figures 0.245
N = 50 to 2 significant figures 50.5

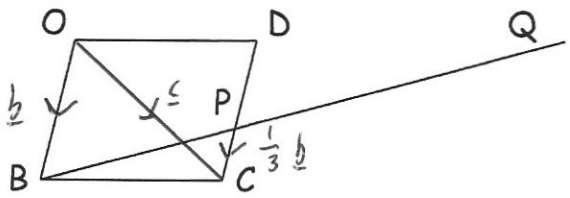
Find the minimum value of $\frac{C}{MN}$

19950

0.245×50.5

$= 1612.447$

OBCD is a parallelogram



$\overrightarrow{OB} = \mathbf{b}$ $\overrightarrow{OC} = \mathbf{c}$

P is a point on CD such that
$CP : PD = 1 : 2$

$\overrightarrow{BQ} = 3\underline{c} - 4\underline{b}$

Find the vector

$\overrightarrow{BP} = \overrightarrow{BO} + \overrightarrow{OC} + \overrightarrow{CP}$

$= -\underline{b} + \underline{c} - \frac{1}{3}\underline{b}$

$= \underline{c} - \frac{4}{3}\underline{b}$

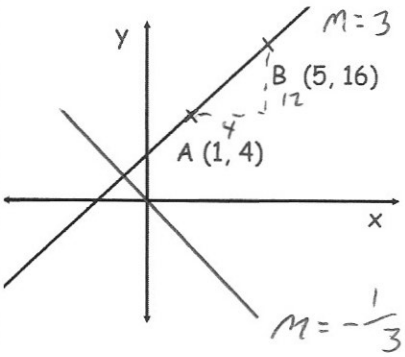
$\overrightarrow{PQ} = 2\overrightarrow{BP}$ $PQ = 2\underline{c} - \frac{8}{3}\underline{b}$

Show ODQ is a straight line.

$\overrightarrow{OQ} = 3\underline{c} - 3\underline{b}$

$\overrightarrow{OP} = \underline{c} - \underline{b}$ $\therefore \overrightarrow{OQ} = 3\overrightarrow{OP}$ ∴ parallel

since both start at O, ODQ is a straight line.



Shown is a straight line that passes through the points A(1, 4) and B(5, 16)

Find the equation of the line

$y = 3x + 1$

Find the shortest distance between the line and the origin.

$3x + 1 = -\frac{1}{3}x$

$9x + 3 = -x$

$10x = -3$

$x = -0.3$ $y = 0.1$

$\sqrt{0.3^2 + 0.1^2} = 0.31622...$