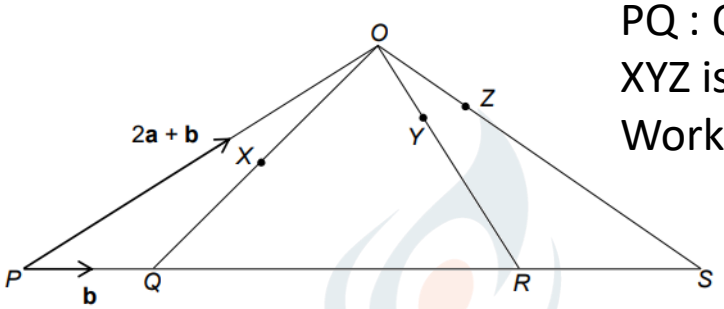
Name - _ _ _ _ _ _ _ _ Start time - _ _ : _ _ End time - _ _ : _ _

Solve the following:

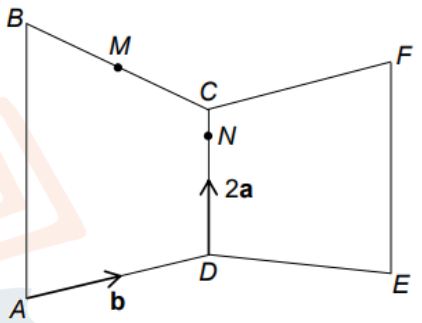
1. POS is a triangle.



$\overrightarrow{PQ} = \mathbf{b}$ $\overrightarrow{PO} = 2\mathbf{a} + \mathbf{b}$

X is the midpoint of QO OY: YR = 1 : 2
PQ : QR : RS = 2 : 6 : 3
XYZ is a straight line. OZ : OS = 1 : k
Work out the value of k.

2. ABCD and CDEF are trapeziums

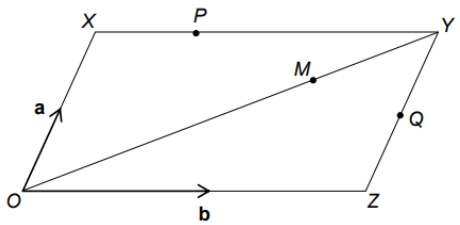


Not drawn accurately

$\overrightarrow{DC} = 2\mathbf{a}$ $\overrightarrow{AD} = \overrightarrow{CF} = \mathbf{b}$

AB : DC : EF = 4 : 2 : 3 M is the midpoint of BC. N is on the line CD. MNE is a straight line. DN : NC = k : 1, where k is an integer. Work out the value of k.

3. OXYZ is a parallelogram



Not drawn accurately

$\overrightarrow{OX} = \mathbf{a}$ $\overrightarrow{OZ} = \mathbf{b}$

ZQ = QY XP : PY = 1 : 2 OM : MY = 5 : 2 Prove, using vectors, that PMQ is a straight line.