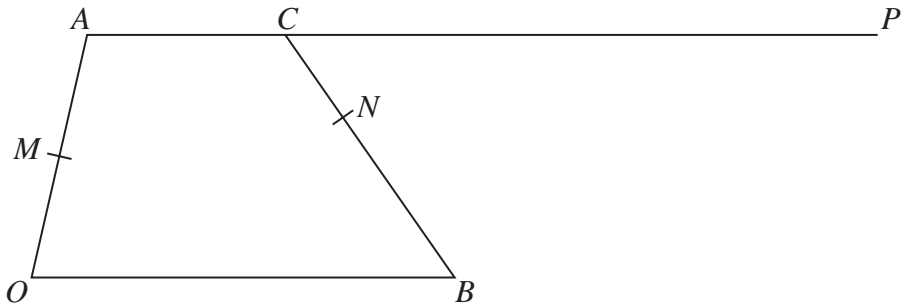


- 23 $OACB$ is a quadrilateral.
 ACP is a straight line.



M is the midpoint of OA .

N is the point on BC such that $BN:NC = 5:3$

$$\vec{OA} = \mathbf{a} \quad \vec{OB} = 3\mathbf{b} \quad \vec{AC} = 2\mathbf{b}$$

$$\vec{CP} = k \times \vec{AC} \quad \text{where } k \text{ is a scalar.}$$

Given that MNP is a straight line, find the value of k .

You must show all your working.

$$k = \dots\dots\dots$$

(Total for Question 23 is 5 marks)