20

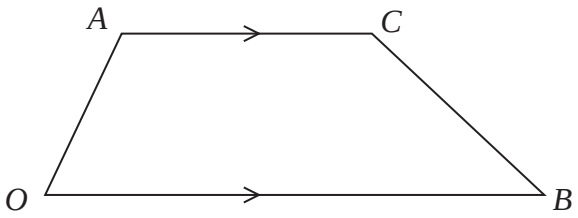

Diagram **NOT** accurately drawn

The diagram shows a trapezium $OACB$ in which

$$\overrightarrow{OA} = \mathbf{a}, \quad \overrightarrow{AC} = 3\mathbf{b}, \quad \overrightarrow{OB} = 5\mathbf{b}$$

The point P lies on OC such that $OP : PC = 5 : 1$

D is the point such that OBD is a straight line and APD is a straight line.

Prove that $OB : OD = 1 : 3$

(Total for Question 20 is 4 marks)