15. Relative to a fixed origin O, the points A and B are such that

$$\overrightarrow{OA} = \begin{pmatrix} -3 \\ 2 \\ 7 \end{pmatrix} \text{ and } \overrightarrow{OB} = \begin{pmatrix} 3 \\ -1 \\ p \end{pmatrix}, \text{ where } p \text{ is a constant}$$

and the points C and D are such that

and the points
$$C$$
 and D are such that
$$\overrightarrow{DC} = \begin{pmatrix} 0 \\ 0 \\ 0 \end{pmatrix} = 1 \quad \overrightarrow{DC} = \begin{pmatrix} 2 \\ 5 \\ 0 \end{pmatrix}$$

$$\overrightarrow{BC} = \begin{pmatrix} 0 \\ 6 \\ -7 \end{pmatrix} \text{ and } \overrightarrow{AD} = \begin{pmatrix} 2 \\ 5 \\ -4 \end{pmatrix}$$
we position vector of the point D

Given that ABCD is a trapezium,

(b) find the value of p.

(a) Find the position vector of the point D.

(1)

(4)