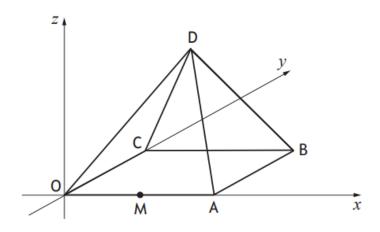
Higher Maths SQA 2018 Specimen Paper 2 Question 4



3

D,OABC is a square-based pyramid as shown.



• O is the origin and OA = 4 units.

• M is the mid-point of OA.

•
$$\overrightarrow{\mathsf{OD}} = 2\mathbf{i} + 2\mathbf{j} + 6\mathbf{k}$$

(a) Express \overrightarrow{DB} and \overrightarrow{DM} in component form.

(b) Find the size of angle BDM.

Answers:

(a)
$$\begin{pmatrix} 2 \\ 2 \\ -6 \end{pmatrix} \begin{pmatrix} 0 \\ -2 \\ -6 \end{pmatrix}$$

(b) 40.3° or 0.703 radians

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