MEMORANDUM

Name: ..... Class: .....

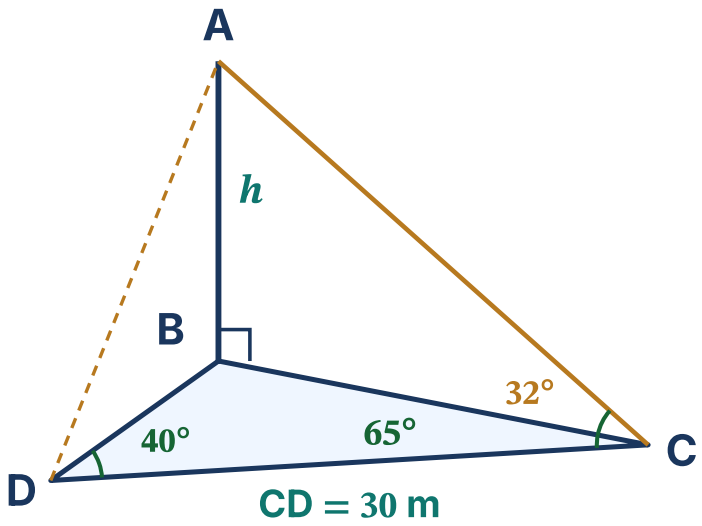
Date: .....

MARK ____ / 16

Answer all questions. Show all your working — marks are awarded for method as well as the final answer. **Teacher copy: accept any correct equivalent method.**

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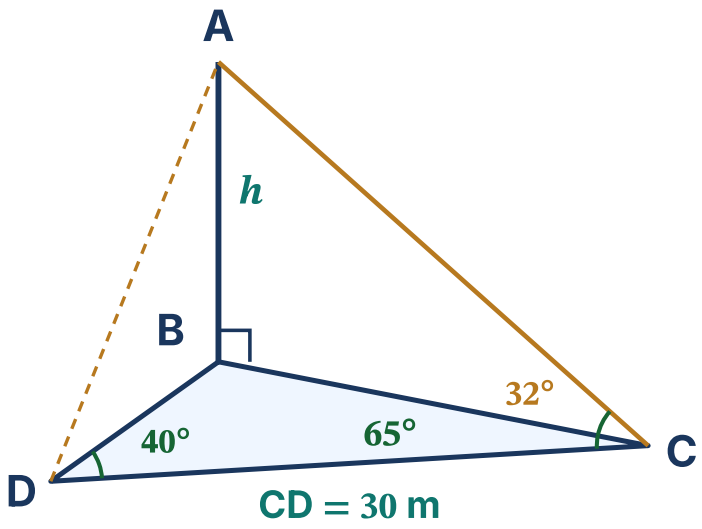
1 In the diagram below, calculate the size of $D\hat{B}C$. (2)



AB is vertical; B, C and D lie in the same horizontal plane

$180° - 40° - 65° = \mathbf{75°}$ ✓✓ (2)

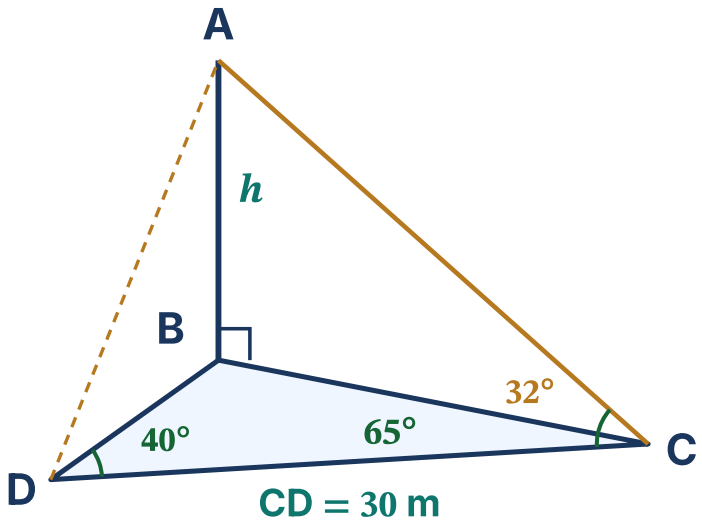
2 In the diagram below, calculate the length of BC. (3)



AB is vertical; B, C and D lie in the same horizontal plane

$\frac{BC}{\sin 40°} = \frac{30}{\sin 75°} \rightarrow BC = \mathbf{19{,}96\ m}$ ✓✓✓ (3)

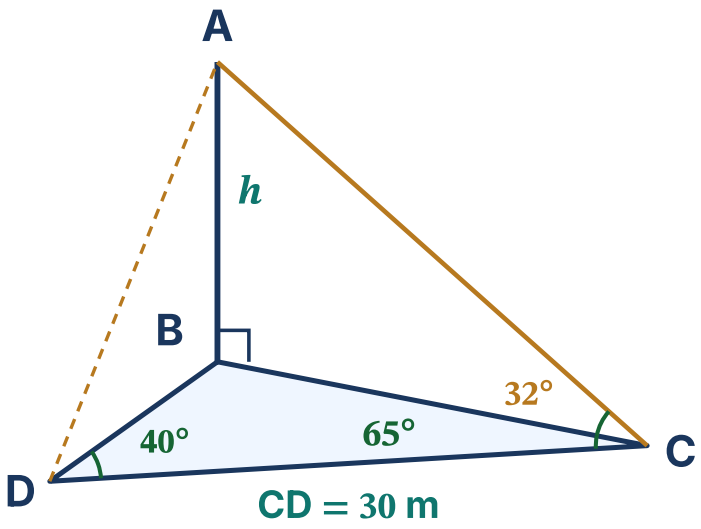
3 In the diagram below, calculate the height of the pole AB. (3)



AB is vertical; B, C and D lie in the same horizontal plane

$AB = BC \tan 32° = 19{,}96 \times \tan 32° = \mathbf{12{,}47\ m}$ ✓✓✓ (3)

4 Why is $A\hat{B}C = 90°$ in the diagram below? (1)



AB is vertical; B, C and D lie in the same horizontal plane

> Because **AB is vertical** and BC lies in the horizontal plane. ✓ (1)

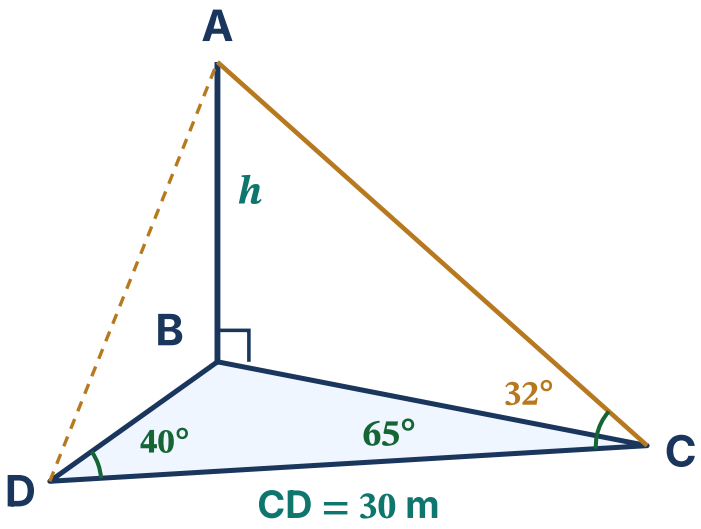
5 Which triangle should you solve first in a 3-D problem? (1)

> The one with the **most information** — usually the horizontal triangle — so that you can find the shared side. ✓ (1)

6 An angle of elevation is measured from which direction? (1)

> From the **horizontal**. ✓ (1)

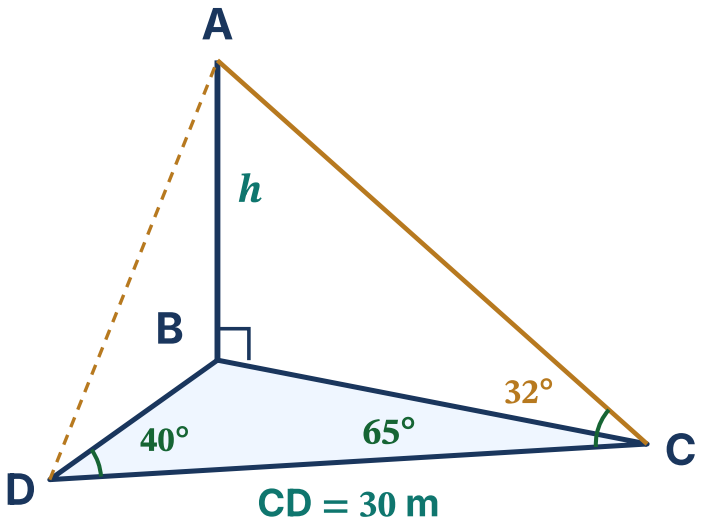
7 Calculate the area of △BCD given BC = 19,96 m, CD = 30 m and B$\hat{C}$D = 65°. (3)



AB is vertical; B, C and D lie in the same horizontal plane

$\frac{1}{2}(19,96)(30)\sin 65° = \mathbf{271,35\ m^2}$ ✓✓✓ (3)

8 Can the sine rule be applied to a three-dimensional figure as a whole? (2)



AB is vertical; B, C and D lie in the same horizontal plane

No — it applies only within a single plane triangle, so the figure must be split up. ✓✓ (2)

TOTAL: 16 marks

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