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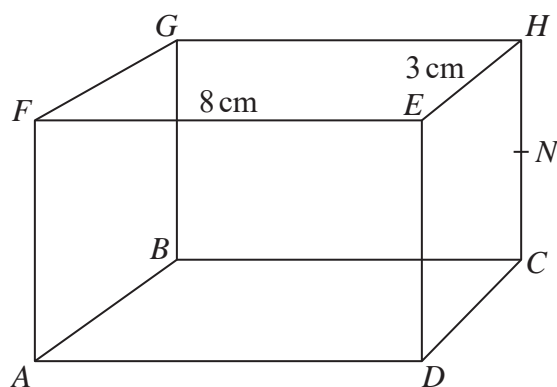
Diagram **NOT**
accurately drawn

Figure 2

Figure 2 shows a solid cuboid $ABCDEFGH$ with $EF = 8$ cm and $EH = 3$ cm.

The angle between the diagonal AH of the cuboid and the plane $ABCD$ is 45° .

The midpoint of CH is N .

Find, in cm to 3 significant figures,

(a) the length of CH , (4)

(b) the length of AH , (3)

(c) the length of FN . (3)

Find, in degrees to 1 decimal place, the size of

(d) the angle between the plane $BCEF$ and the plane $FGHE$, (3)

(e) angle FNG . (3)

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Question 10 continued

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Question 10 continued

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Question 10 continued**(Total for Question 10 is 16 marks)**

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11 (a) Show that $\log pq^4 - \log pq^2 = \log pq^6 - \log pq^4$ (3)

Given that $\log pq^2$ and $\log pq^4$ are the second and third terms of an arithmetic series, find

(b) the first term of the series, (3)

(c) the sum of the first n terms of the series.

Give your answer in the form $n \log pq^s$, expressing s in terms of n . (4)

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Question 11 continued

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(Total for Question 11 is 10 marks)

TOTAL FOR PAPER IS 100 MARKS

