

9

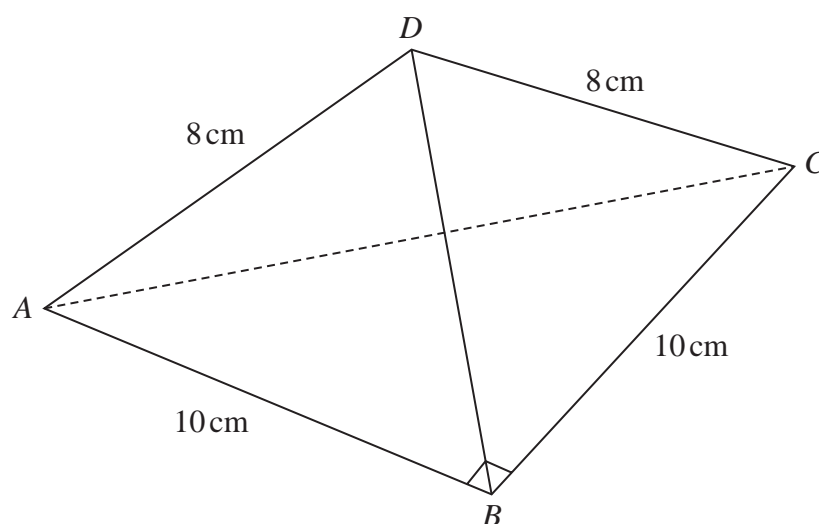
Diagram **NOT**  
accurately drawn**Figure 2**

Figure 2 shows a triangular pyramid  $ABCD$  with base  $ABC$

$$AB = BC = 10 \text{ cm} \quad AD = CD = 8 \text{ cm} \quad \angle ABC = 90^\circ$$

- (a) Find the exact length of  $AC$

Give your answer in the form  $p\sqrt{q}$  cm where  $p$  is an integer and  $q$  is a prime number.

(2)

The point  $M$  is the midpoint of  $AC$

- (b) Find the exact length of  $BM$

Give your answer in the form  $m\sqrt{n}$  cm where both  $m$  and  $n$  are prime numbers.

(2)

Given that  $BD = 6$  cm,

- (c) find, in degrees to one decimal place, the size of the acute angle between the plane  $ACD$  and the plane  $ABC$

(4)

The base  $ABC$  of the pyramid is placed on a horizontal plane.

- (d) Find, in cm to 3 significant figures, the vertical height of  $D$  above the base.

(2)

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Question 9 continued

Handwriting practice area with horizontal dotted lines.



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Question 9 continued

Handwritten solution area for Question 9 continued, featuring horizontal dotted lines for writing.

(Total for Question 9 is 10 marks)

