

Examples



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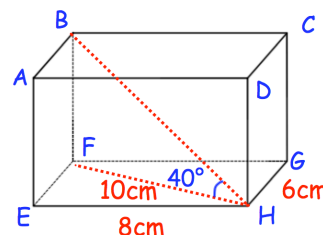
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Workout

Question 1: Here is a cuboid.

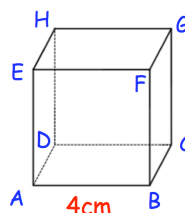
$EH = 8\text{cm}$, $GH = 6\text{cm}$, $FH = 10\text{cm}$ and $\angle FHB = 40^\circ$

- (a) Work out the length BF
- (b) Work out the length BH
- (c) Work out the size of angle FBH



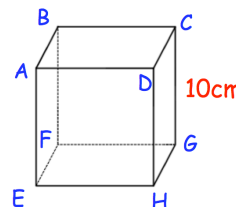
Question 2: Here is a cube with side length 4cm.

- (a) Calculate the length AC
- (b) Calculate the size of angle CAG



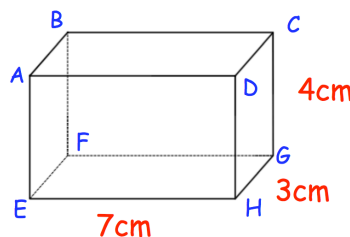
Question 3: Shown is a cube with side length 10cm

- (a) Calculate the length of FH.
- (b) Calculate the size of angle DFH



Question 4: Shown is a cuboid.

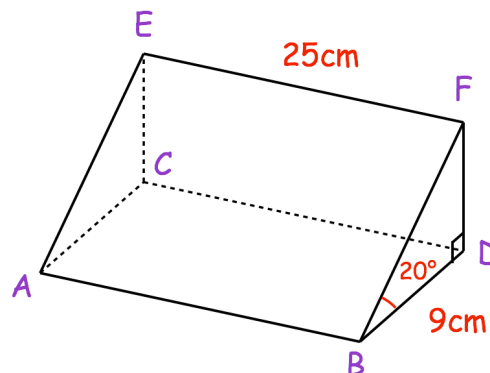
- (a) Work out the size of angle GEH
- (b) Work out the size of angle CHG
- (c) Work out the length EG
- (d) Work out the size of angle CEG



Question 5: ABCDEF is a triangular prism

$BD = 9\text{cm}$, $EF = 25\text{cm}$, $\angle BDF = 90^\circ$ and $\angle DBF = 20^\circ$

- (a) Work out the length DF
- (b) Work out the length BF
- (c) Work out the length BC
- (d) Work out the size of angle CBE



3D Trigonometry

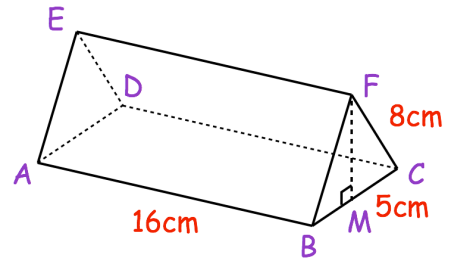
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Question 6: Shown is a triangular prism.

M is the midpoint of BC.
 $AB = 16\text{cm}$, $CM = 5\text{cm}$, $CF = 8\text{cm}$ and $\angle BMF = 90^\circ$

Calculate

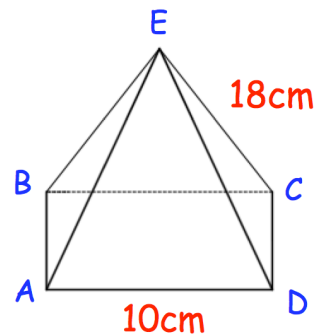
- (a) Length FM (b) Length BE (c) Length BD
 (d) Angle CBD (e) Angle ABE (f) Angle DMF



Question 7: Shown is a square-based pyramid.
 The apex E is directly over the centre of the base.

$AD = 10\text{cm}$ and $CE = 18\text{cm}$

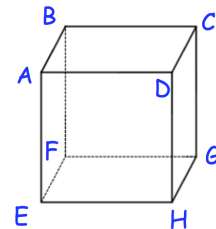
- (a) Work out the length of AC
 (b) Calculate angle CAE
 (c) Work out the height of the pyramid.



Question 8: Shown is a cuboid.

$FG = 5.5\text{cm}$ $DH = 6.2\text{cm}$ Angle FHG = 47°

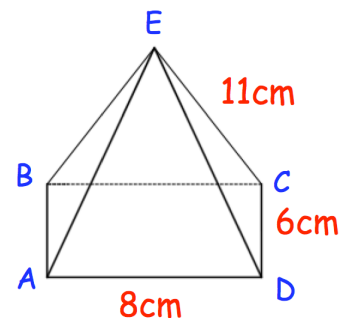
Calculate the angle between DF and the plane EFGH.



Question 9: Shown below is a rectangular-based pyramid.
 The apex E is directly over the centre of the base.

$AD = 8\text{cm}$ $CD = 6\text{cm}$ $CE = 11\text{cm}$

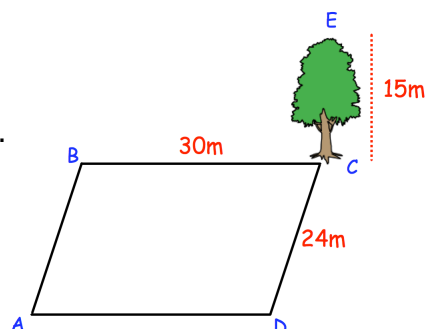
- (a) Calculate the height of the pyramid.
 (b) Calculate the angle between face ABE and the base ABCD.



Apply

Question 1: A tree is located in the corner of a rectangular field.
 The field is 30 metres long and 24 metres wide.
 The tree is 15 metres tall.

Calculate angle CAE.

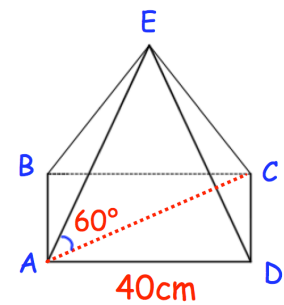


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Question 2: Here is a square-based pyramid
The apex E is directly over the centre of the base.

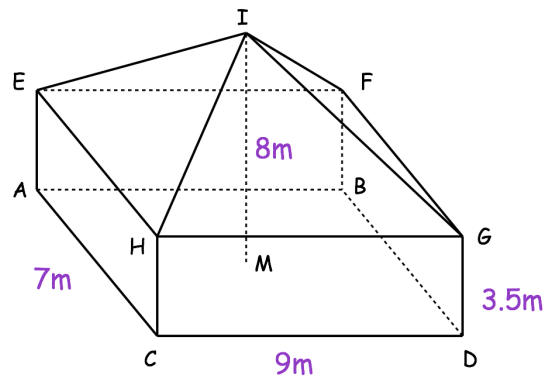
Calculate the volume of the pyramid.



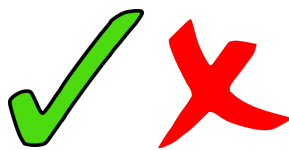
Question 3: The diagram shows a cuboid and a pyramid.
The apex of the pyramid, I, is directly above the centre, M, of ABCD.

AC = 7m CD = 9m DG = 3.5m
IM = 8m

- Calculate the angle between EI and the plane EFGH.
- Calculate the angle between AI and plane ABCD.
- Calculate the angle between the planes FGI and EFGH
- Calculate the angle between the planes EHI and ACEH



Answers



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