Question 1: Here is a cuboid.

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

(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

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

(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
Question 6: Shown is a triangular prism.

M is the midpoint of BC.
AB = 16cm, CM = 5cm, CF = 8cm and ∠BMF = 90°

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 = 10cm and CE = 18cm

(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 = 5.5cm DH = 6.2cm ∠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 = 8cm CD = 6cm CE = 11cm

(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.
3D Trigonometry
Video 332 on Corbettmaths

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

(a) Calculate the angle between EI and the plane EFGH.

(b) Calculate the angle between AI and plane ABCD.

(c) Calculate the angle between the planes FGI and EFGH

(d) Calculate the angle between the planes EHI and ACEH

Answers

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