3D Trig/Pythagoras

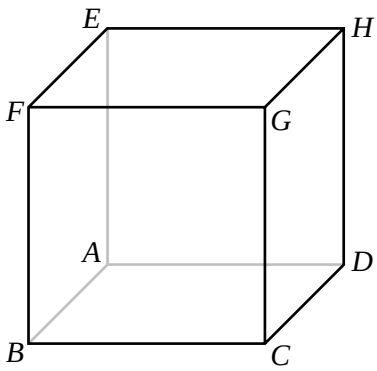
SCAN ME

REVISE THIS TOPIC

CHECK YOUR ANSWERS

SCAN ME

1 *ABCDEFGH* is a cube.



BF = 9 cm

(a) Work out the length of *AC* giving your answer to 1 decimal place.

..... cm

(2)

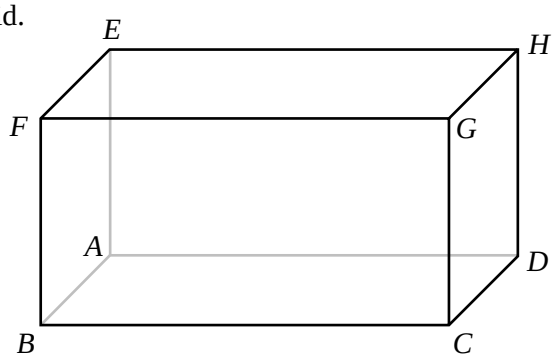
(b) Work out the length of *CE* giving your answer to 1 decimal place.

..... cm

(2)

(Total for Question 1 is 4 marks)

2 *ABCDEFGH* is a cuboid.



BC = 24 cm
CD = 10 cm
DH = 9 cm

(a) Work out the length of *BD*.

..... cm
(2)

(b) Work out the length of *BH* giving your answer to 1 decimal place.

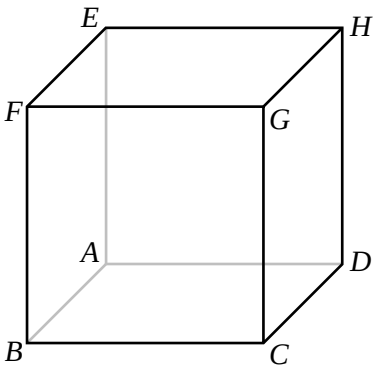
..... cm
(2)

(c) Work out the size of angle *DBH* giving your answer to 1 decimal place.

°
.....
(2)

(Total for Question 2 is 6 marks)

3 *ABCDEFGH* is a cube.



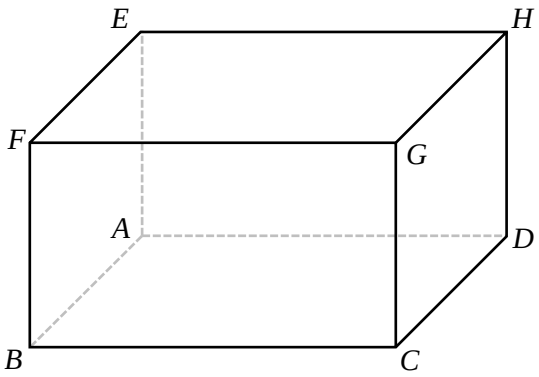
The surface area of the cube is 3456 cm^2

Work out the length of *EC* giving your answer to 1 decimal place.

..... cm

(Total for Question 3 is 5 marks)

4 *ABCDEFGH* is a cuboid.



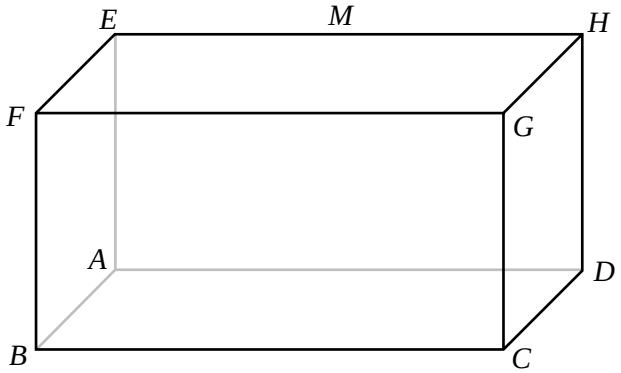
CD = 6 cm
DH = 5 cm
Angle *BDC* = 60°

Work out the perimeter of triangle *BDH*.

..... cm

(Total for Question 4 is 4 marks)

5 *ABCDEFGH* is a cuboid.



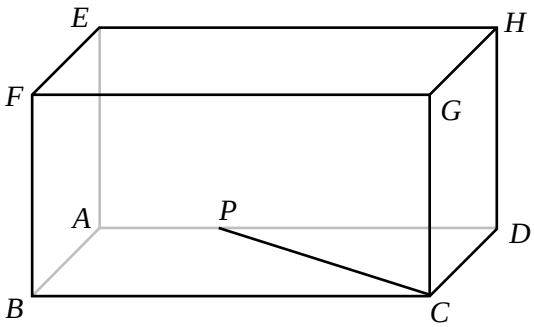
M is the midpoint of line *EH*.
BC = 30 cm
CD = 12 cm
DH = 19 cm

Work out the length of *BM* giving your answer to 1 decimal place

..... cm

(Total for Question 5 is 4 marks)

6 *ABCDEFGH* is a cuboid.



CD = 6 cm
DH = 7 cm
PC = 10 cm

P is the point on the line *AD* so that *AP* : *PD* = 1 : 2

(a) Work out the length of *BC* giving your answer to 1 decimal place.

..... cm
(3)

(b) Work out the length of *BP* giving your answer to 1 decimal plac.

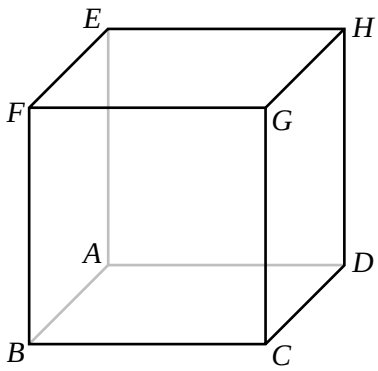
..... cm
(2)

(c) Work out the size of angle *BPF* giving your answer to 1 decimal place.

°
.....
(2)

(Total for Question 6 is 7 marks)

7 *ABCDEFGH* is a cube.



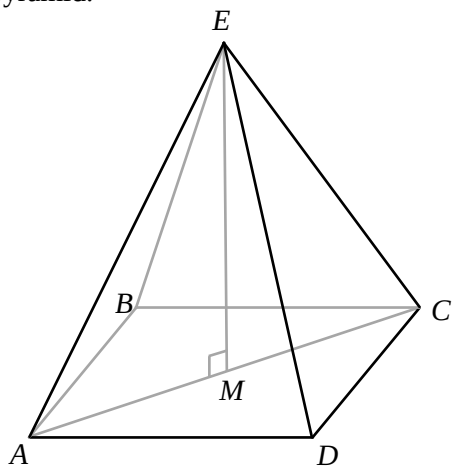
BG = 6 cm

Work out the volume of the cube giving your answer to 1 decimal place.

..... cm^3

(Total for Question 7 is 4 marks)

8 *ABCDE* is a square-based pyramid.



M is the midpoint of the line *AC* and *AC* is perpendicular to *ME*.

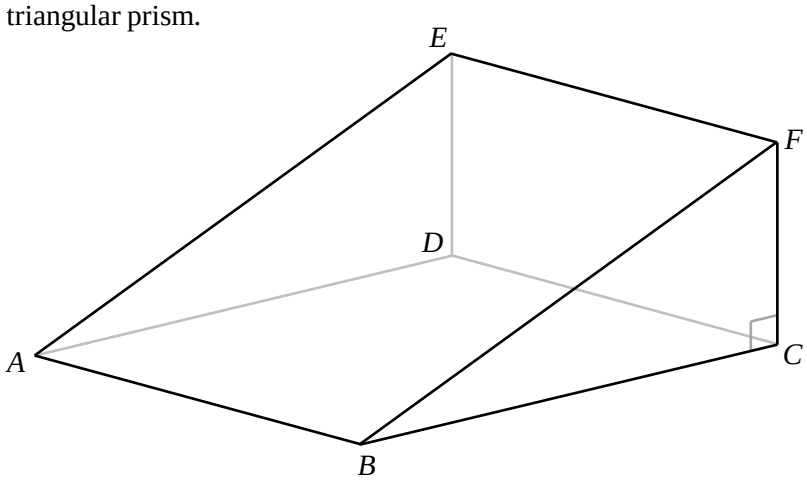
EC = 53 cm
EM = 45 cm

Work out the volume of the pyramid.

..... cm^3

(Total for Question 8 is 6 marks)

9 *ABCDEF* is a triangular prism.



AB = 18 cm *BC* = 22 cm Angle *BFC* = 70°

(a) Work out the length of *AF* giving your answer to 1 decimal place.

..... cm

(4)

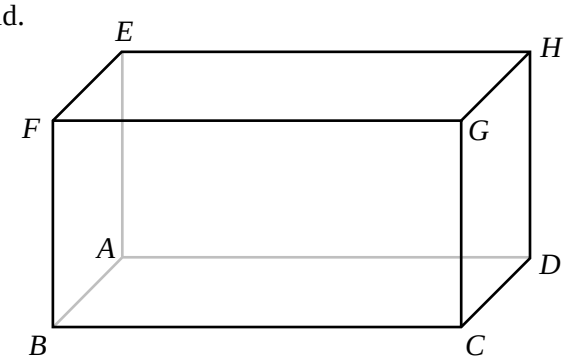
(b) Work out the size of the angle between *AF* and the plane *ABCD*.
Give your answer to 1 decimal place.

..... °

(4)

(Total for Question 9 is 8 marks)

10 *ABCDEFGH* is a cuboid.



CD = 3.5 cm
DH = 4.5 cm
Angle *HAD* = 38°

(a) Work out the length of *AG* giving your answer to 1 decimal place.

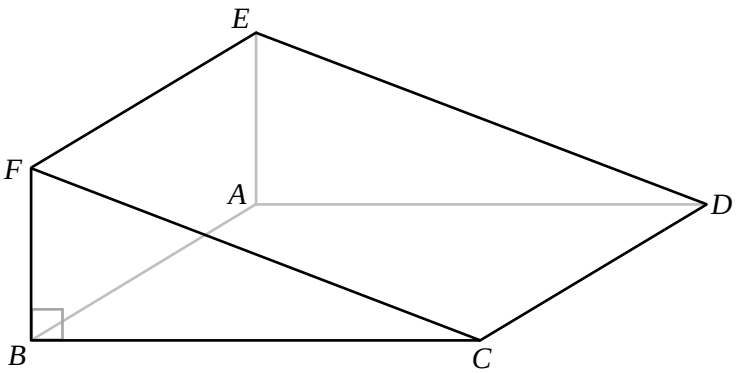
..... cm
(4)

(a) Work out the size of the angle between *AG* and the plane *ADHE*.
Give your answer to 1 decimal place.

°
.....
(2)

(Total for Question 10 is 6 marks)

11 *ABCDEF* is a triangular prism.



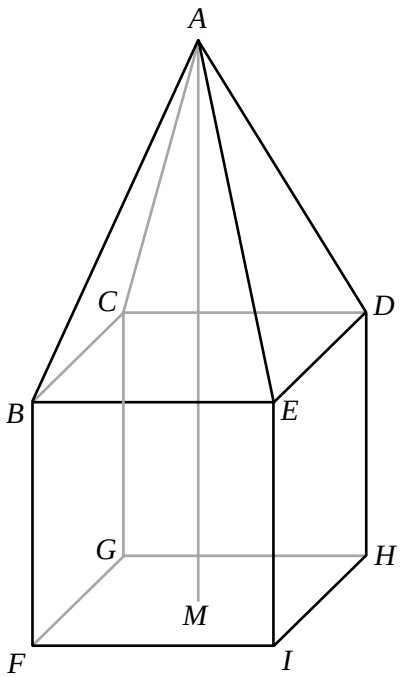
BF = 15 cm
Angle *CED* = 33°
BF : *BC* = 5 : 12

Work out the size of the angle between *CE* and the plane *ABCD*.
Give your answer to 1 decimal place.

.....°

(Total for Question 11 is 6 marks)

12 *ABCDE* is a square-based pyramid placed on top of cube *BCDEFGHI*



M is the midpoint of the line *FH* with *FH* perpendicular to *MA*.
FI = 12 cm
AD = 19 cm

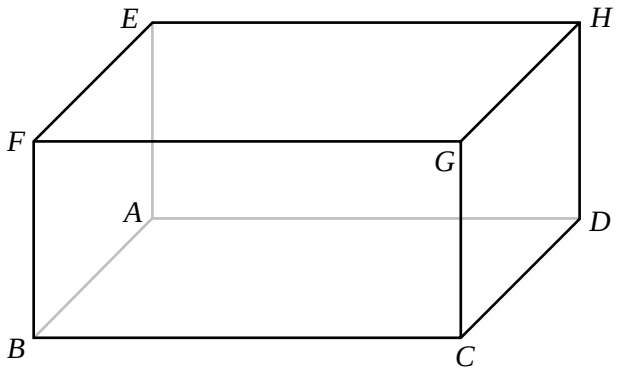
Work out the size of the angle between *AF* and the plane *FGHI*.
Give your answer to 1 decimal place.

.....°

(Total for Question 12 is 6 marks)

Solutions

13 *ABCDEFGH* is a cuboid.



$CG : CD : CB = 1 : 2 : 3$
$BG = k$ cm

Show that the volume of the cuboid can be written in the form $\frac{3\sqrt{a}}{b}k^3$ where a and b are integers.

(Total for Question 13 is 6 marks)