**1** Here is a cube.

*BF* = 9 cm



9 cm

**1 (a)** Work out the length of *AC* giving your answer to 1 decimal place. **[2 marks]**

Answer _____ cm

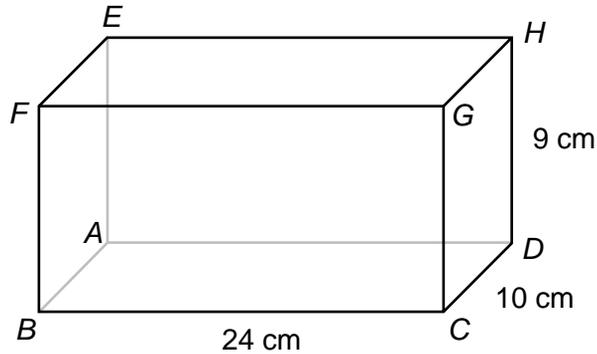**1 (b)** Work out the length of *CE* giving your answer to 1 decimal place. **[2 marks]**

Answer _____ cm

$\frac{}{4}$

**2**      Here is a cuboid.

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



**2 (a)**    Work out the length of *BD.*        **[2 marks]**

Answer _____ cm

**2 (b)**    Work out the length of *BH* giving your answer to 1 decimal place.    **[2 marks]**

Answer _____ cm

**2 (c)**    Work out the size of angle *DBH* giving your answer to 1 decimal place.   **[2 marks]**

°

Answer _____

**3**  Here 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.  **[5 marks]**

Answer _____ cm

11

**Turn over ▶**

**4**    Here is a cuboid.

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



Work out the perimeter of triangle *BDH*.                    **[4 marks]**

Answer _____ cm

**5**   Here 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.     **[4 marks]**

Answer _____ cm

8

**6** Here is a cuboid.
*P* is the point on the line *AD* so that *AP* : *PD* = 1 : 2
*CD* = 6cm     *DH* = 7 cm     *PC* = 10 cm
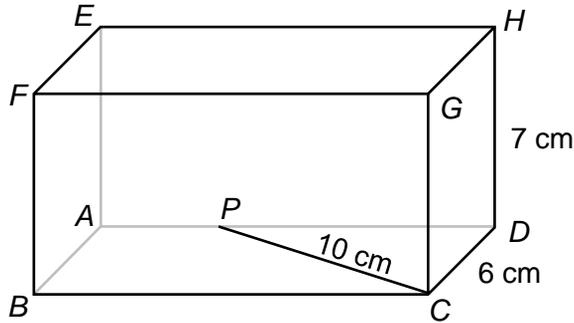


**6 (a)** Work out the length of *BC* giving your answer to 1 decimal place. **[3 marks]**

Answer _____ cm

**6 (b)** Work out the length of *BP* giving your answer to 1 decimal place. **[2 marks]**

Answer _____ cm

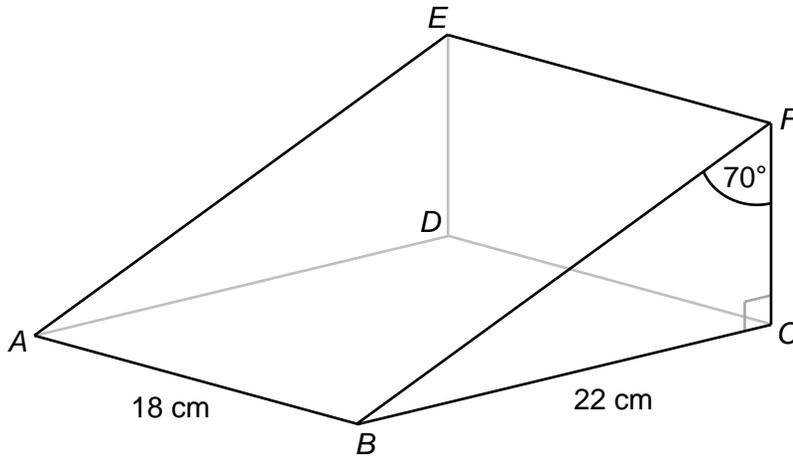**6 (c)** Work out the size of angle *BPF* giving your answer to 1 decimal place. **[2 marks]**

°

Answer _____

**7**     Here is a cube.
*BG* = 6 cm



Work out the volume of the cube giving your answer to 1 decimal place. **[4 marks]**

Answer _____ cm³

11

**Turn over ▶**

**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

53 cm

45 cm

E

B

C

M

A

D

Volume of pyramid = $\dfrac{1}{3}$ × area of base × perpendicular height

Work out the volume of the pyramid.　　　　　　**[6 marks]**

Answer _____ cm³

**9** Here is a triangular prism.

$AB$ = 18 cm $\qquad$ $BC$ = 22 cm $\qquad$ Angle $BFC$ = 70°



**9** **(a)** Work out the length of $AF$ giving your answer to 1 decimal place. **[4 marks]**

_____

_____

_____

_____

_____

Answer _____ cm

**9** **(b)** Work out the size of angle $FAC$ giving your answer to 1 decimal place.

_____

_____

_____

_____

Answer _____

12

**Turn over ▶**

**10** Here is a cuboid.

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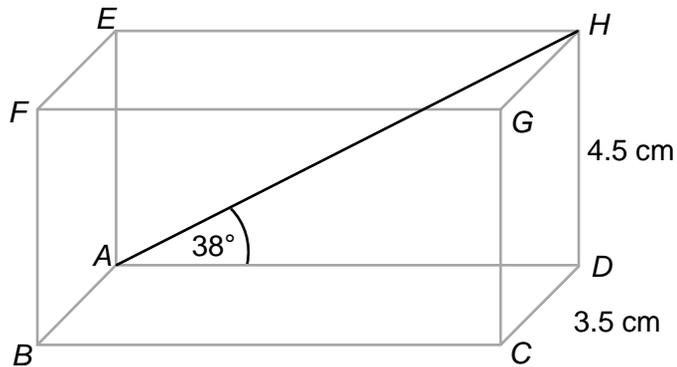


**10 (a)** Work out the length of $AG$ giving your answer to 1 decimal place.     **[4 marks]**

Answer _____ cm

**10 (b)** Work out the size of angle $HAG$ giving your answer to 1 decimal place.  **[2 marks]**

Answer _____ °

**11**  Here is a triangular prism.

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



Work out the size of angle *ACE* giving your answer to 1 decimal place.  **[6 marks]**

_____

_____

_____

_____

_____

_____

_____

_____
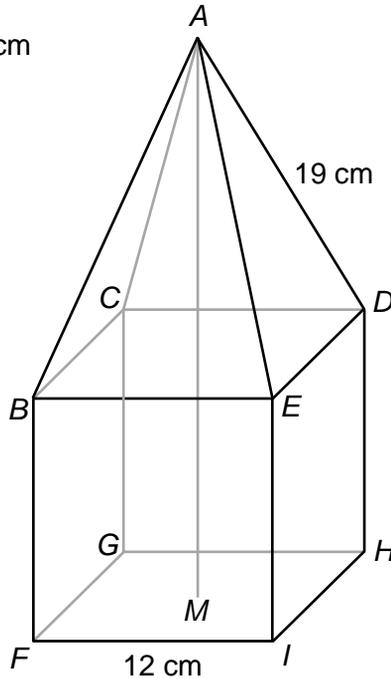
_____

_____

_____

°

Answer _____

**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*.

         *F* = 12 cm      *AD* = 19 cm



     Work out the size of angle *AFM* giving your answer to 1 decimal place.  **[6 marks]**

                                                                          °

     Answer _____

**13** Here 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 $\dfrac{3\sqrt{a}}{b}\,k^3$ where $a$ and $b$ are integers.

**[6 marks]**