

Advanced Trigonometry

1. June 2016 (3H) Q16

$ABCDEFGH$ is a cuboid.

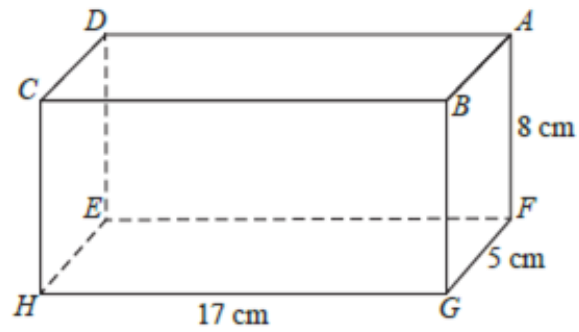


Diagram NOT
accurately drawn

The cuboid has

length 17 cm
width 5 cm
height 8 cm

Work out the size of the angle that AH makes with the plane $EFGH$.
Give your answer correct to 1 decimal place.

2. June 2016 (4HR) Q17

The diagram shows a prism.

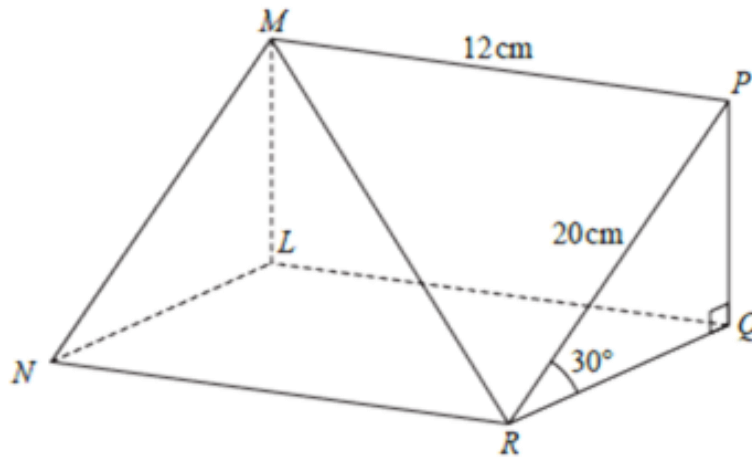


Diagram NOT
accurately drawn

Triangle PQR is a cross section of the prism.

$$PR = 20 \text{ cm}$$

$$MP = 12 \text{ cm}$$

$$\text{Angle } PRQ = 30^\circ$$

$$\text{Angle } PQR = 90^\circ$$

Calculate the size of the angle that the line MR makes with the plane $RQLN$.

Give your answer correct to 1 decimal place.

3. Jan 2017 (4H) Q21

The diagram shows a cuboid $ABCDEFGH$.

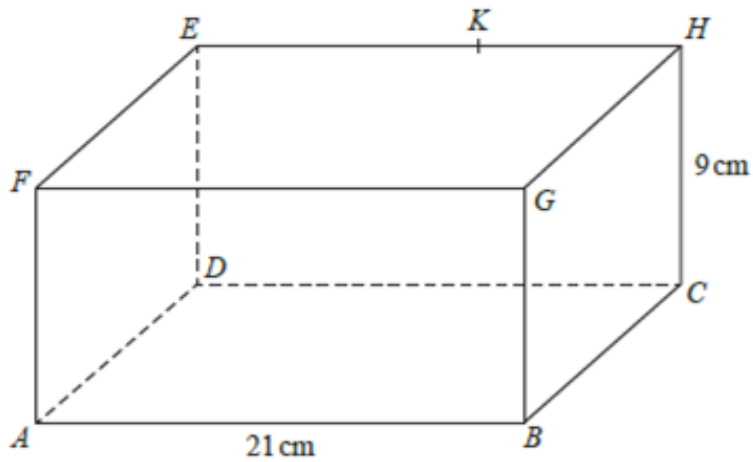


Diagram NOT accurately drawn

$AB = 21$ cm and $CH = 9$ cm.

K is the point on EH such that angle $AKB = 68^\circ$ and $BK = 16.5$ cm.

(a) Calculate the size of angle BAK .

Give your answer correct to 1 decimal place.

(b) Calculate the size of the angle between the line BK and the plane $ABCD$.

Give your answer correct to 1 decimal place.

4. June 2017 (3H) Q21

The diagram shows a triangular prism with a horizontal base $ABCD$.

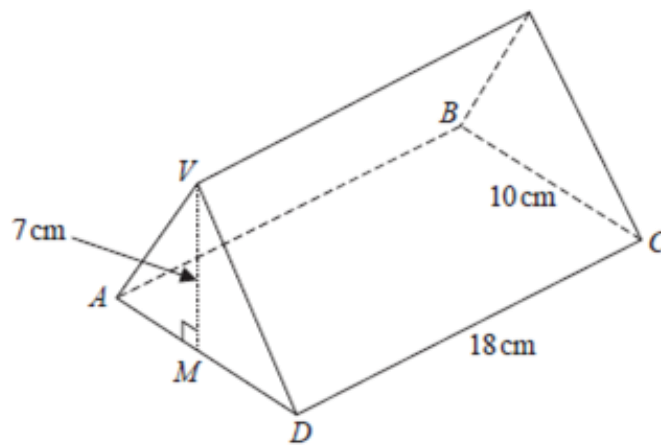


Diagram NOT
accurately drawn

M is the midpoint of AD .

The vertex V is vertically above M .

$DC = 18\text{ cm}$, $BC = 10\text{ cm}$, $MV = 7\text{ cm}$.

Calculate the size of the angle between VC and the plane $ABCD$.
Give your answer correct to 3 significant figures.

5. June 2017 (3HR) Q21

Here is a shape $ABCDE$.

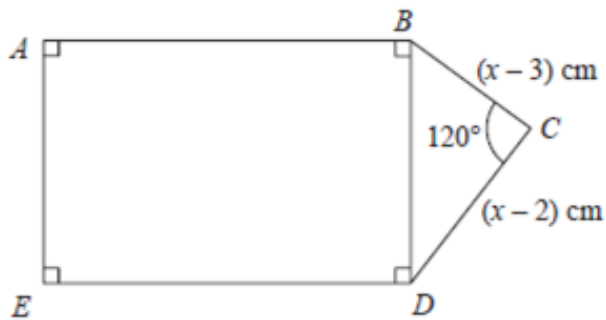


Diagram NOT
accurately drawn

$ABDE$ is a rectangle in which $AB = 2BD$

BCD is a triangle in which angle $BCD = 120^\circ$

$BC = (x - 3)$ cm $CD = (x - 2)$ cm

The area of the rectangle $ABDE$ is S cm²

Show that S can be expressed in the form $S = ax^2 + bx + c$
where a , b and c are integers to be found.

6. June 2017 (4HR) Q22

ABCDEFGH is a cuboid.

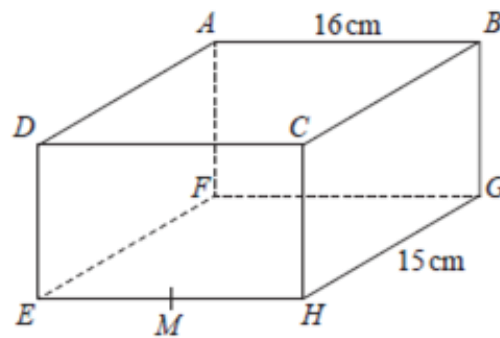


Diagram NOT
accurately drawn

$AB = 16$ cm and $HG = 15$ cm.

M is the midpoint of EH .

BM makes an angle of 24° with the base $EFGH$.

Calculate the height, BG , of the cuboid.

Give your answer correct to 3 significant figures.

7. June 2018 (2H) Q19

The diagram shows a triangular prism.

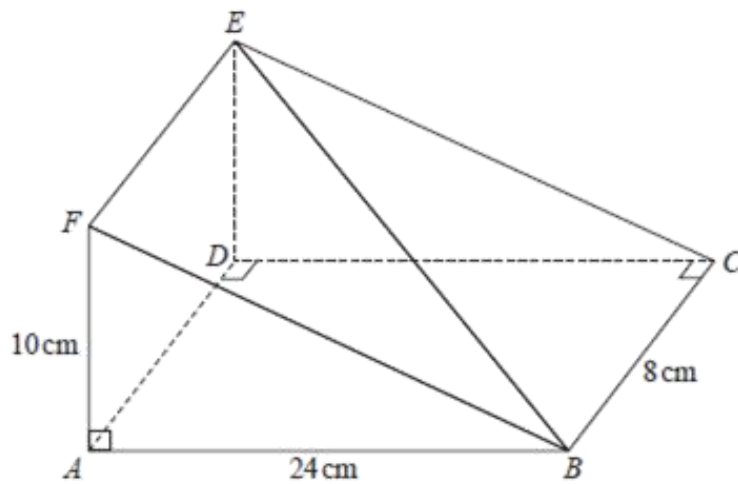


Diagram NOT
accurately drawn

$AF = 10$ cm, $AB = 24$ cm and $BC = 8$ cm.
Angle $FAB =$ angle $ADC =$ angle $BCD = 90^\circ$

Work out the size of the angle between the line BE and the plane $ABCD$.
Give your answer correct to 1 decimal place.