



1.

[4 marks]

$ABCDEFGH$ is a cuboid.

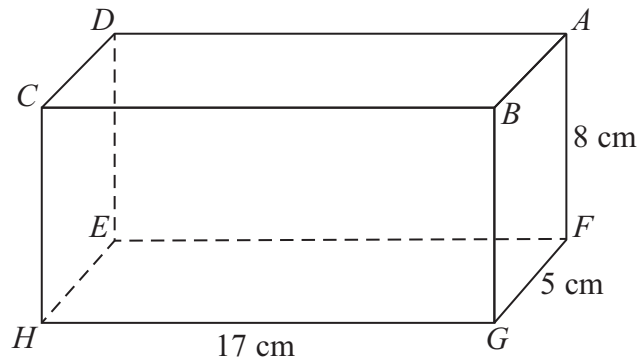


Diagram **NOT**
accurately drawn

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.



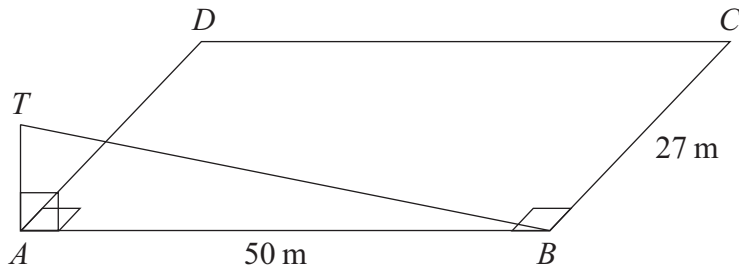


Diagram **NOT**
accurately drawn

$ABCD$ is a horizontal rectangular field.

$AB = 50$ m.

$BC = 27$ m.

AT is a vertical mast.

- (a) The angle of elevation of T from B is 19° .
Calculate the length of AT .
Give your answer correct to 3 significant figures.

..... m
(3)

- (b) Calculate the distance from C to T .
Give your answer correct to 3 significant figures.

..... m
(3)



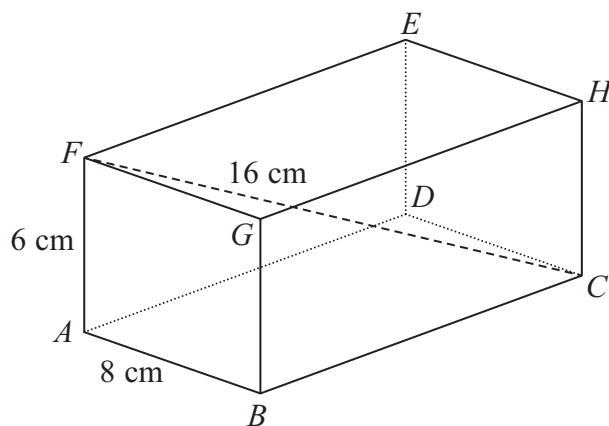


Diagram **NOT**
accurately drawn

The diagram shows a cuboid $ABCDEFGH$.

$AB = 8$ cm, $AF = 6$ cm and $FC = 16$ cm.

(a) Find the length of BC .

Give your answer correct to 3 significant figures.

$BC = \dots\dots\dots$ cm
(3)

(b) Find the size of the angle between the line FC and the plane $ABGF$.

Give your answer correct to 1 decimal place.

$\dots\dots\dots^\circ$
(2)



The diagram shows a prism.

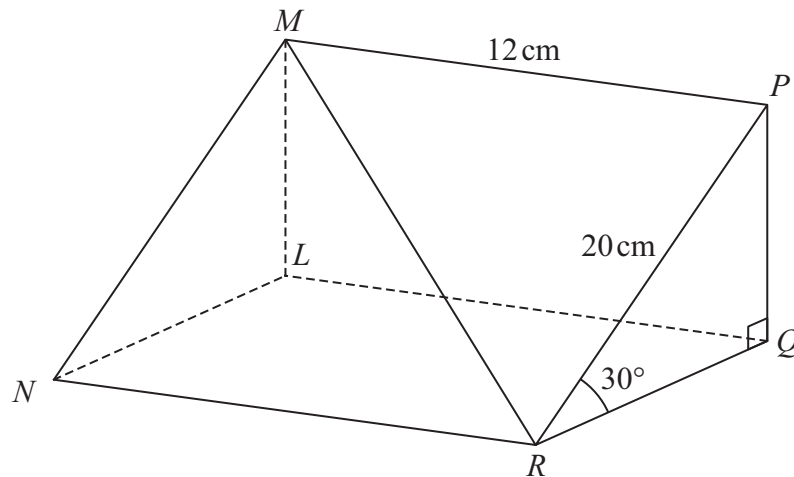


Diagram **NOT**
accurately drawn

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.

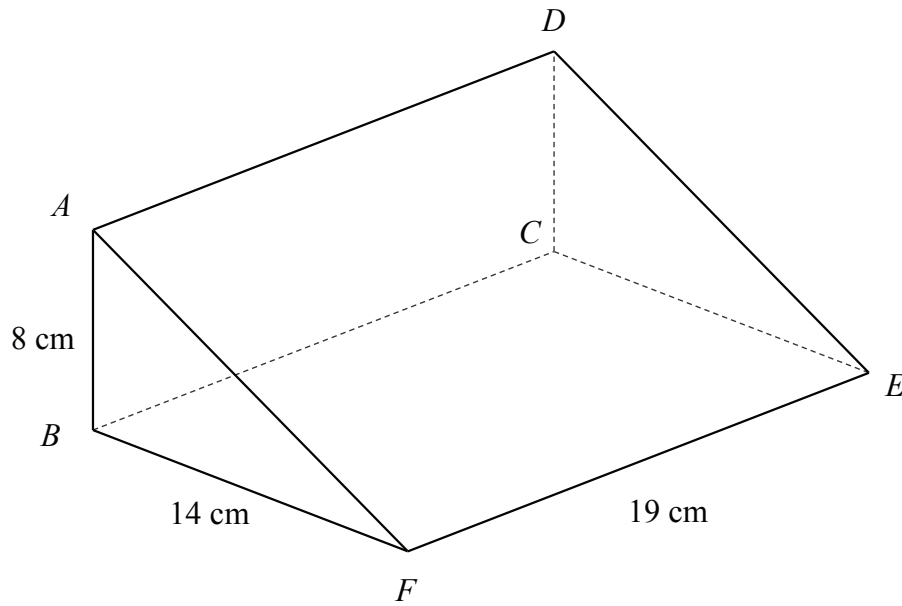


The diagram shows a triangular prism $ABCDEF$

$$AB = 8 \text{ cm}$$

$$BF = 14 \text{ cm}$$

$$EF = 19 \text{ cm}$$



- (a) Calculate the distance between A and E .
- (b) Calculate the angle between AE and the plane $BCEF$.



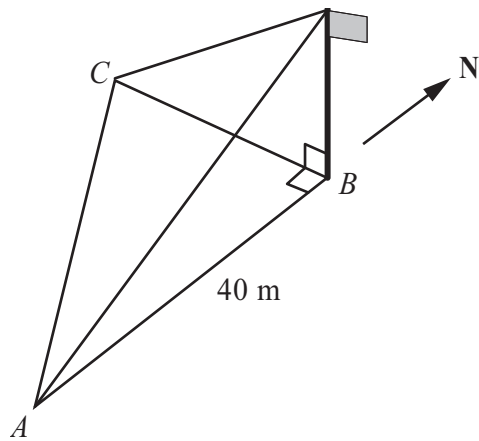


Diagram **NOT**
accurately drawn

A , B and C are points on horizontal ground.

C is due West of B .

A is due South of B and $AB = 40$ m.

There is a vertical flagpole at B .

From A , the angle of elevation of the top of the flagpole is 13° .

From C , the angle of elevation of the top of the flagpole is 19° .

Calculate the distance AC .

Give your answer correct to 3 significant figures.

..... m



The diagram shows a pyramid with a horizontal rectangular base $PQRS$.

$PQ = 16$ cm.

$QR = 10$ cm.

M is the midpoint of the line PR .

The vertex, T , is vertically above M .

$MT = 15$ cm.

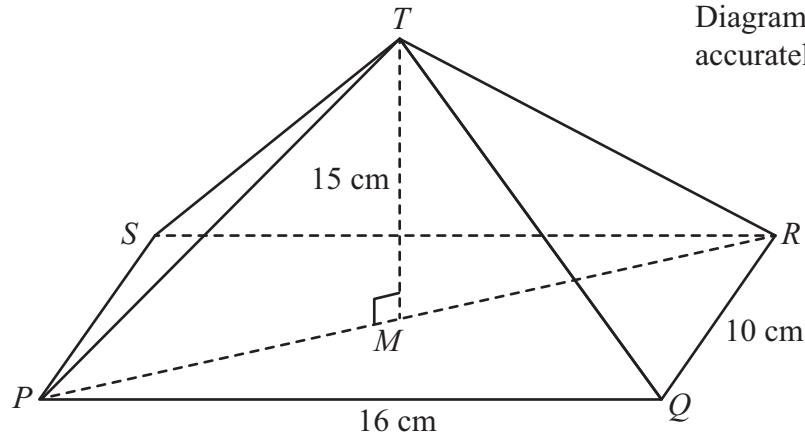


Diagram **NOT**
accurately drawn

Calculate the size of the angle between TP and the base $PQRS$.

Give your answer correct to 1 decimal place.

o

.....



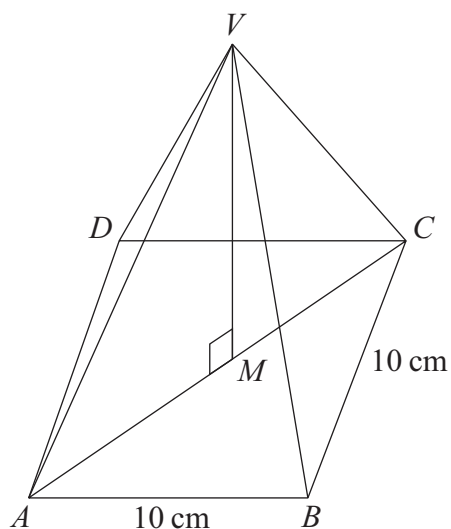


Diagram **NOT**
accurately drawn

The diagram shows a pyramid.

The base, $ABCD$, is a horizontal square of side 10 cm.

The vertex, V , is vertically above the midpoint, M , of the base.

$VM = 12$ cm.

Calculate the size of angle VAM .

.....
o



$ABCDE$ is a square-based pyramid.

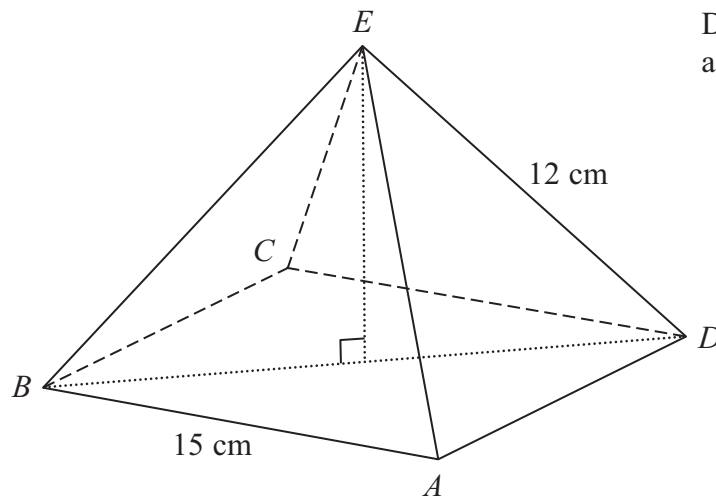


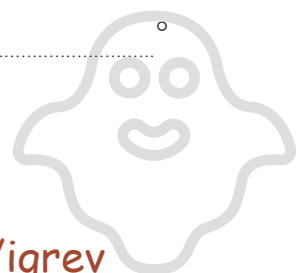
Diagram **NOT**
accurately drawn

$$AE = BE = CE = DE = 12 \text{ cm}$$

$$AB = 15 \text{ cm}$$

Calculate the size of angle DEB .

Give your answer to the nearest degree.



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

$AB = 10$ cm. $BC = 7$ cm.

M is the midpoint of AD .

The vertex T is vertically above M .

$MT = 6$ cm.

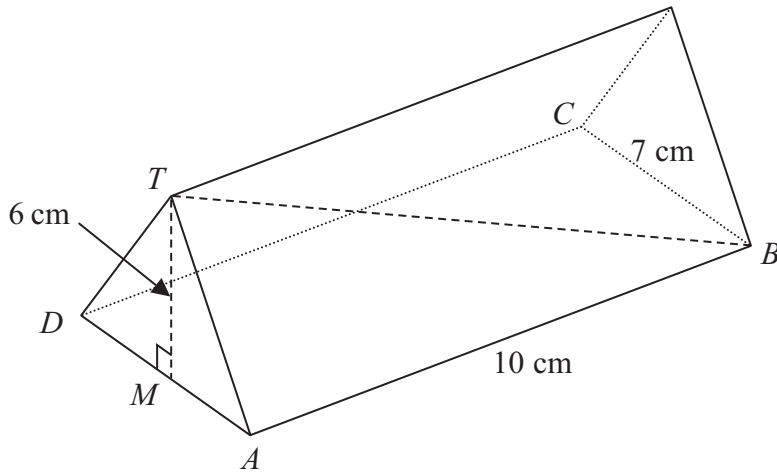


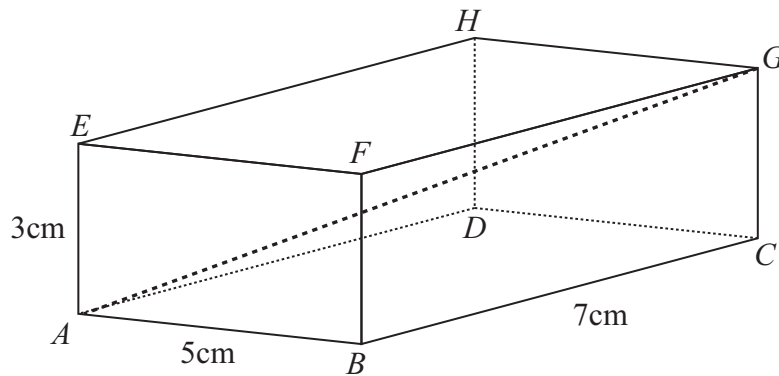
Diagram **NOT**
accurately drawn

Calculate the size of the angle between TB and the base $ABCD$.

Give your answer correct to 1 decimal place.



Diagram **NOT**
accurately drawn



The diagram shows a cuboid $ABCDEFGH$.

$$AB = 5\text{cm}$$

$$BC = 7\text{cm}$$

$$AE = 3\text{cm}$$

- (a) Calculate the length of AG .
Give your answer correct to 3 significant figures.

..... cm
(3)

- (b) Calculate the size of the angle between AG and the plane $ABCD$.
Give your answer correct to 1 decimal place.

.....
(2)



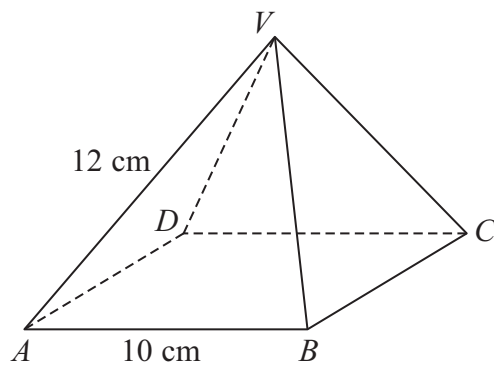


Diagram **NOT**
accurately drawn

$ABCD$ is the square base of the pyramid $VABCD$.

$AB = BC = CD = DA = 10\text{ cm}$.

$VA = VB = VC = VD = 12\text{ cm}$.

Calculate the height of the pyramid.

Give your answer correct to 3 significant figures.



A pyramid has a horizontal square base $ABCD$ with sides of length 230 metres.

M is the midpoint of AC .

The vertex, T , is vertically above M .

The slant edges of the pyramid are of length 218 metres.



Calculate the height, MT , of the pyramid.

Give your answer correct to 3 significant figures.

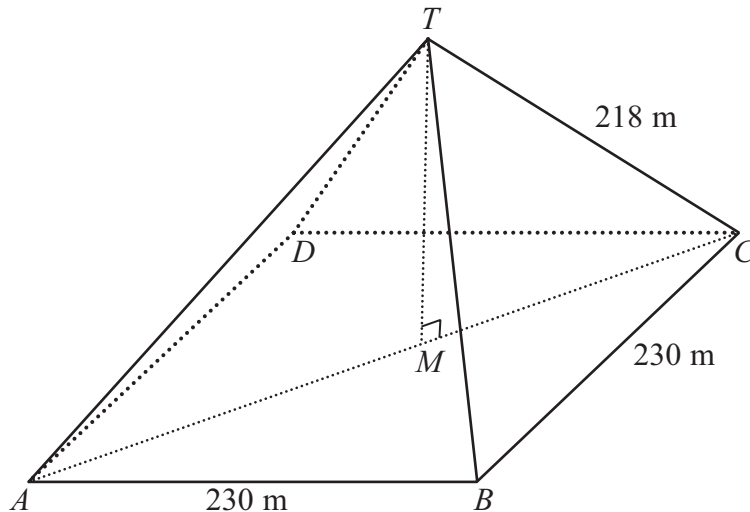


Diagram **NOT**
accurately drawn

..... m



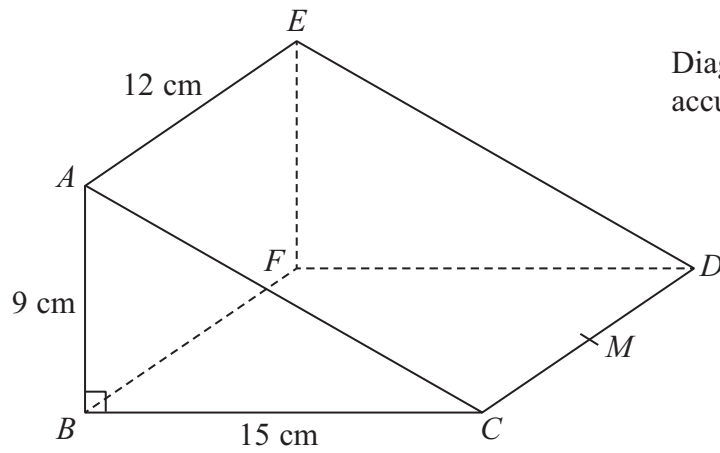


Diagram **NOT**
accurately drawn

$ABCDEF$ is a triangular prism.

$AB = 9$ cm, $BC = 15$ cm and $AE = 12$ cm.

Angle $ABC = 90^\circ$

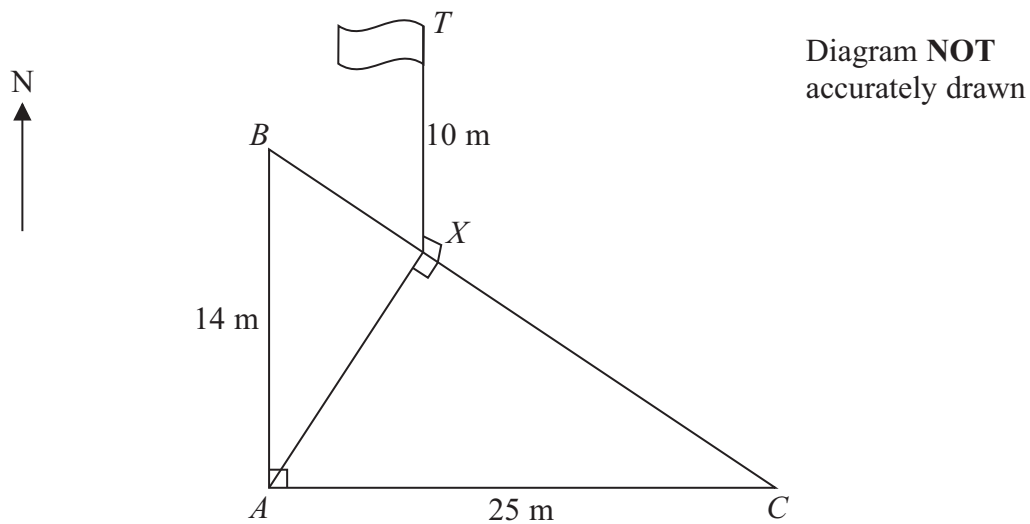
M is the midpoint of CD .

Calculate the size of the angle between AM and the plane $BCDF$.

Give your answer correct to 1 decimal place.

o





A , B and C are points on horizontal ground.

B is due North of A and AB is 14 m.

C is due East of A and AC is 25 m.

A vertical flagpole, TX , has its base at the point X on BC such that the angle AXC is a right angle.

The height of the flagpole, TX , is 10 m.

Calculate the size of the angle of elevation of T from A .

Give your answer correct to 1 decimal place.

o



The diagram shows a cube $ABCDEFGH$.

The sides of the cube are of length 5 cm.

Calculate the size of the angle between the diagonal AH and the base $EFGH$.

Give your answer correct to 1 decimal place.

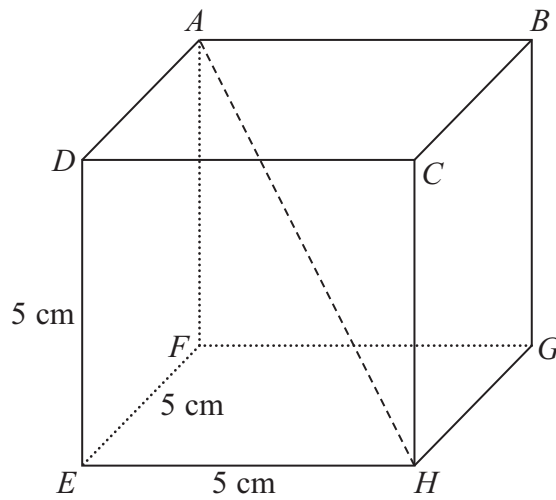


Diagram **NOT**
accurately drawn

