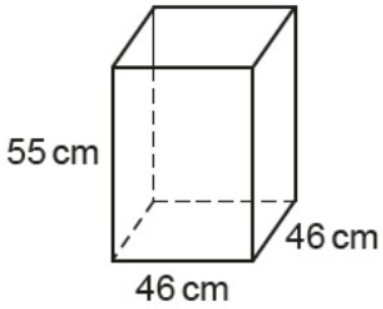
G62 (H)- Trigonomtery in 3D

OCR

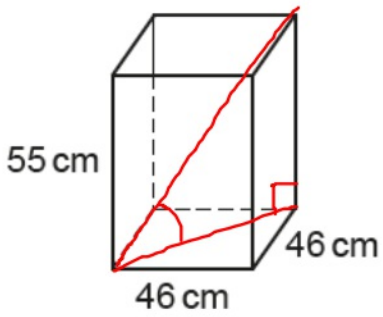
Video created by W Neill



(b) Calculate the angle the stick makes with the base of the crate.

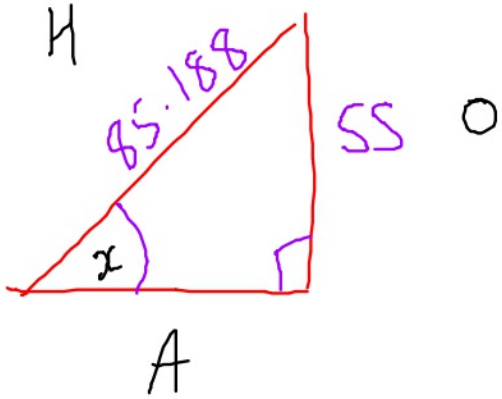
(b) ..... ° **[3]**

Video created by W Neill



(b) Calculate the angle the stick makes with the base of the crate.

G47
G62



SOH CAH TOA

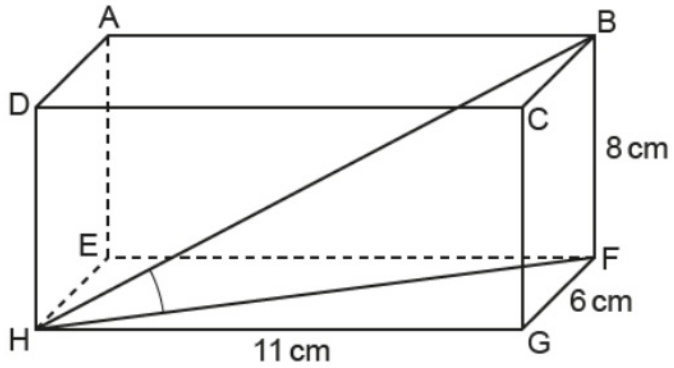
$\sin x = 0.645...$

$x = \sin^{-1} 0.645...$

(b) 40.2° ..... ° **[3]**

14 The diagram shows a cuboid ABCDEFGH.

G61
G62

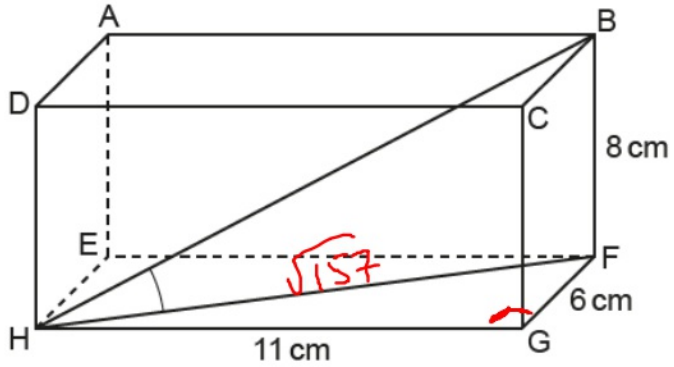


Calculate angle BHF.

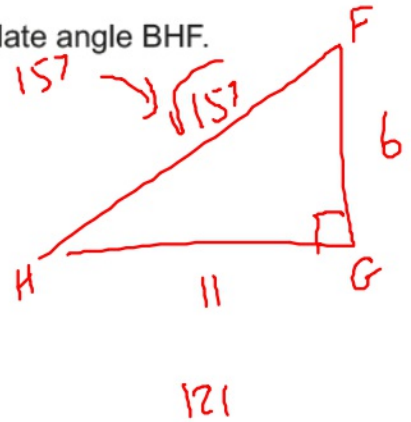
..... ° **[5]**

G61
G62

14 The diagram shows a cuboid ABCDEFGH.

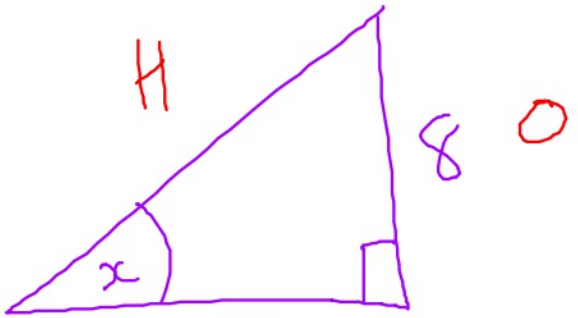


Calculate angle BHF.



121

36



SOH CAH TOA ✓

Tan x = 0.638

$x = \tan^{-1} 0.638$

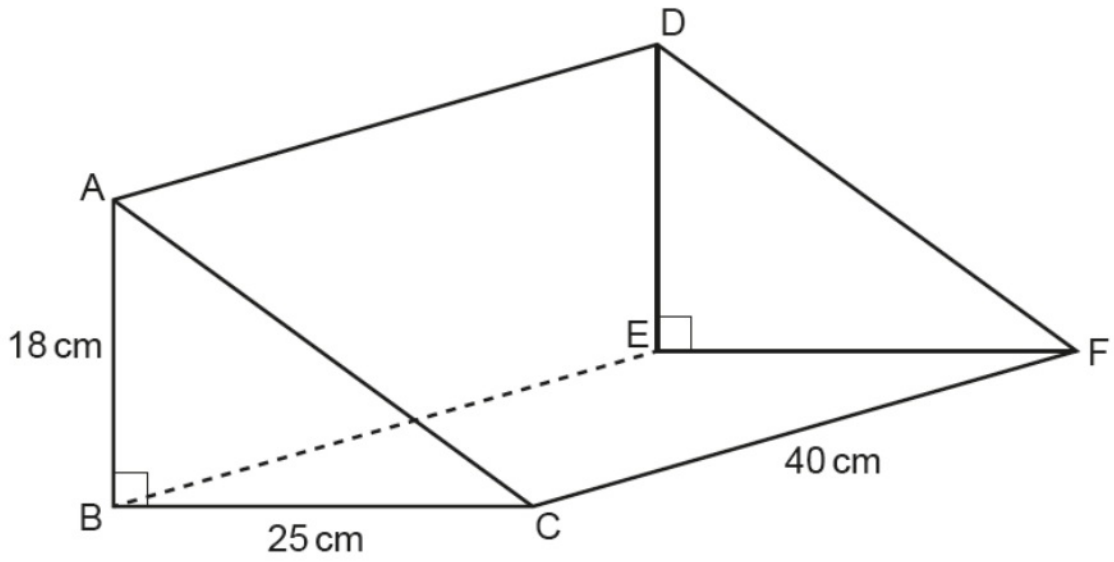
32.55°

..... ° **[5]**

Video created by W Neill

20 The diagram shows a right-angled triangular prism ABCDEF.

G61
G62



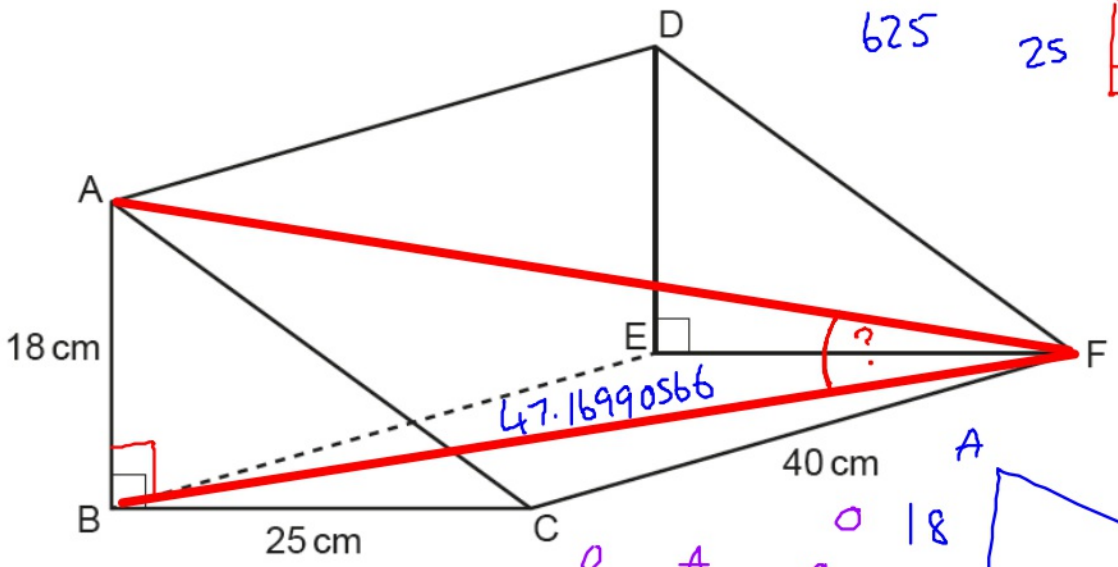
Calculate angle AFB.

..... ° **[6]**

Video created by W Neill

20 The diagram shows a right-angled triangular prism ABCDEF.

G61
G62



625
25
2225
47.16990566
40
1600

A
h
18
?
B
47.1699
F
a

SOH CAH TOA

Calculate angle AFB.

18
Tan ?
47.1699

Tan ? = 0.38...
? = Tan^{-1} 0.38...

20.9°

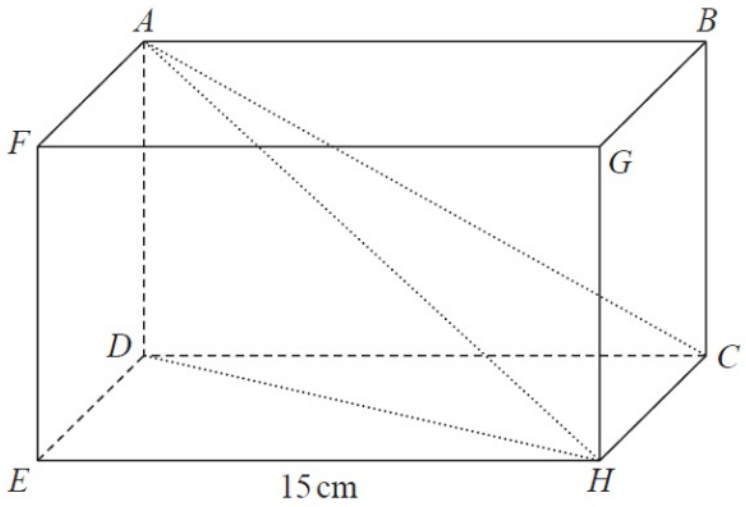
..... ° **[6]**

Edexcel

Video created by W Neill

12 *ABCDEFGH* is a cuboid.

G62



Angle $EDH = 64°$
Angle $ACD = 28°$
$EH = 15$ cm

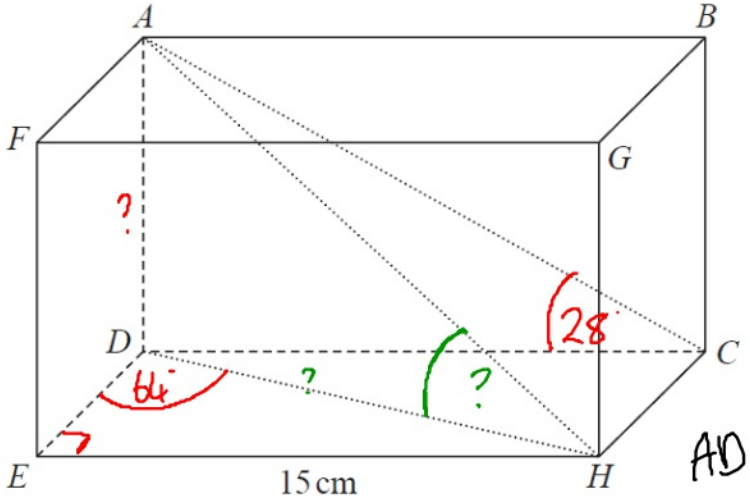
Work out the size of angle AHD.
Give your answer correct to 1 decimal place.

.....°

(Total for Question 12 is 4 marks)

12 *ABCDEFGH* is a cuboid.

G62



Angle $EDH = 64°$
Angle $ACD = 28°$
$EH = 15$ cm

Work out the size of angle AHD.
Give your answer correct to 1 decimal place.

DH = a, 64, h, 15

SOH CAH TOA

Sin 64 = 15 / h

h = 16.68902 cm

AD = o, h, 28, 15 a

Tan 28 = o / 15

o = 7.97564 cm

7.975 o

Tan ? = 7.97... / 16.68...

Tan x = 0.477...

x = Tan⁻¹

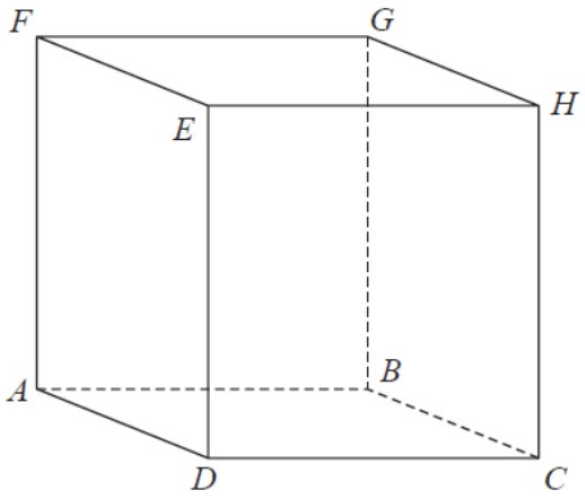
a 16.689...

25.5°

(Total for Question 12 is 4 marks)

18 *ABCDEFGH* is a cuboid.

G62



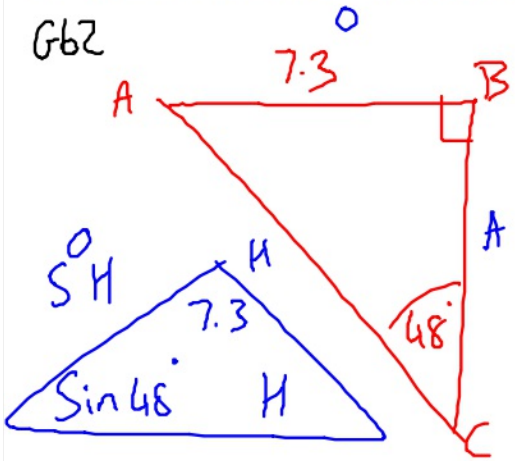
$AB = 7.3\,\text{cm}$
$CH = 8.1\,\text{cm}$
Angle $BCA = 48°$

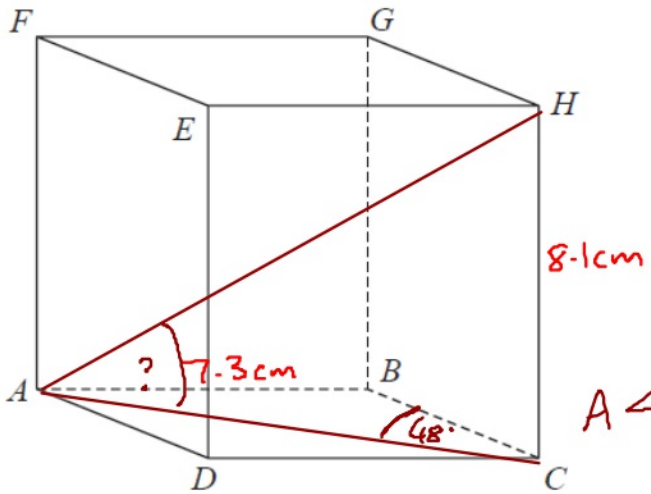
Find the size of the angle between AH and the plane $ABCD$.
Give your answer correct to 1 decimal place.

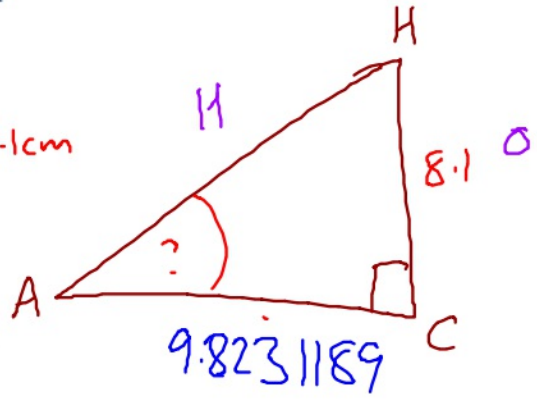
.....°

(Total for Question 18 is 4 marks)

18 *ABCDEFGH* is a cuboid.







$AB = 7.3$ cm
$CH = 8.1$ cm
Angle $BCA = 48°$

Find the size of the angle between AH and the plane $ABCD$.
Give your answer correct to 1 decimal place.

H = 9.823 1189

A
8.1
Tan ? 9.823...

Tan ? = 0.826...

? = Tan⁻¹ 0824

39.5°

(Total for Question 18 is 4 marks)

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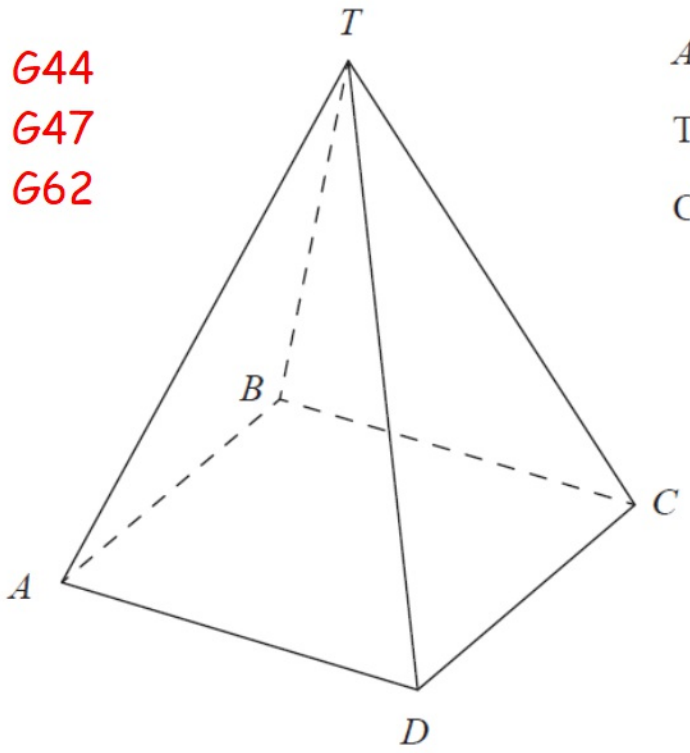
12 Here is a pyramid with a square base $ABCD$.

G44
G47
G62



$AB = 5\,\text{m}$

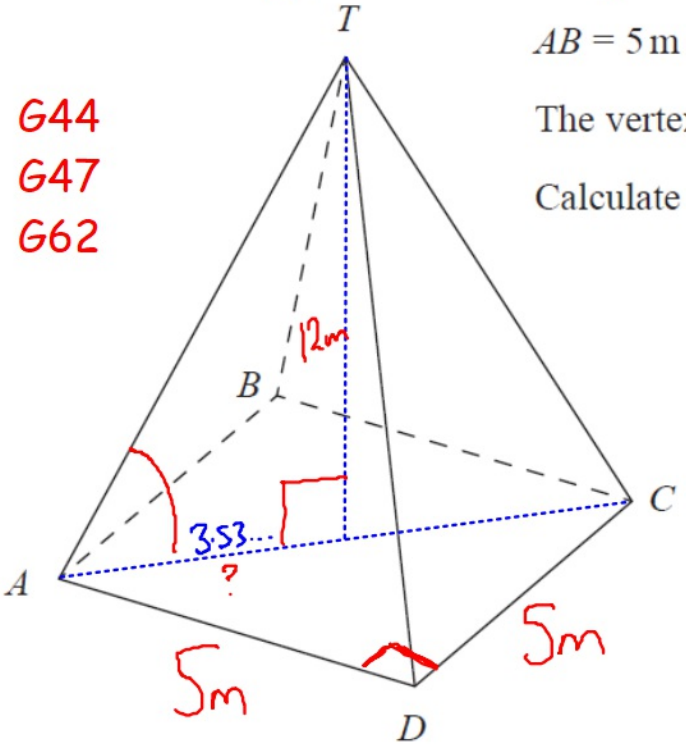
The vertex T is 12 m vertically above the midpoint of AC.

Calculate the size of angle TAC.

.....°

Video Created by W Neill

12 Here is a pyramid with a square base $ABCD$.



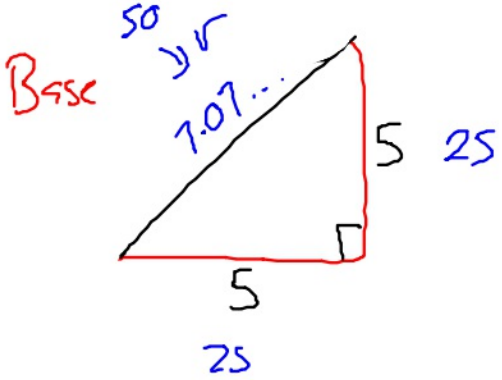
G44
G47
G62

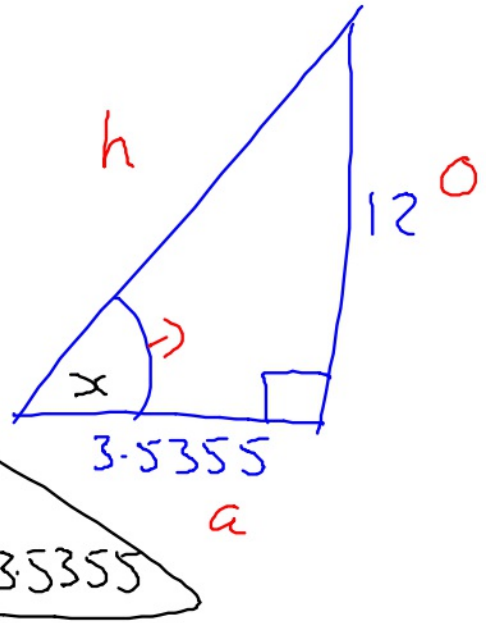
$AB = 5\,\text{m}$

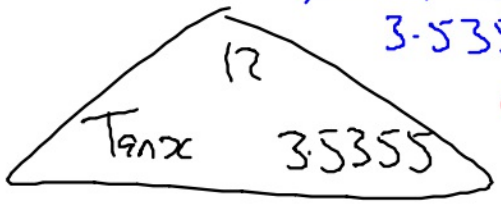
The vertex T is 12 m vertically above the midpoint of AC.

Calculate the size of angle TAC.

SOH CAH TOA ✓







$\text{Tan}\,x = 3.394$ 73.6 °

$x = \text{Tan}^{-1}\,3.394$ ✓

AQA

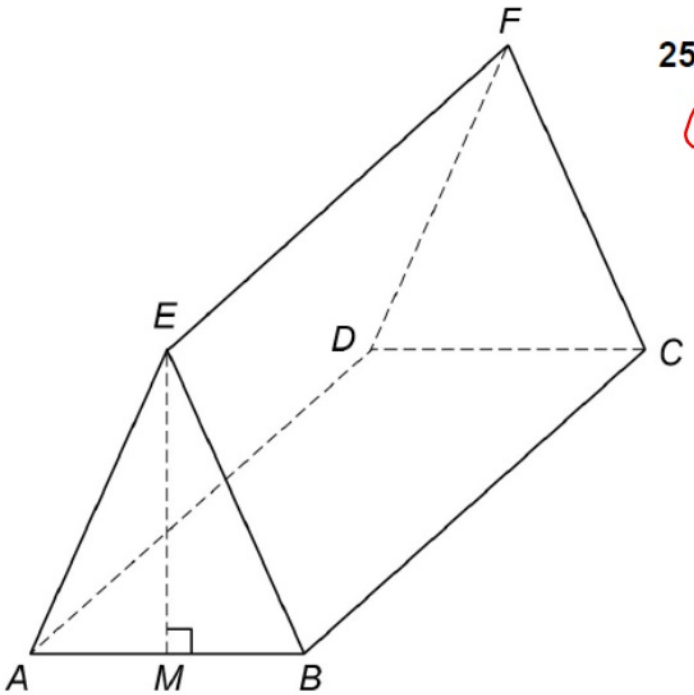
Video created by W Neill

25 Rectangle *ABCD* is the horizontal base of a triangular prism *ABCDEF*.

AE = *BE*

E is vertically above *M*, the midpoint of *AB*.

AB = 16 cm *AE* = 17 cm *BC* = 30 cm



25 (b) Work out the size of angle *ECM*. **[4 marks]**

G62

Answer _____ degrees

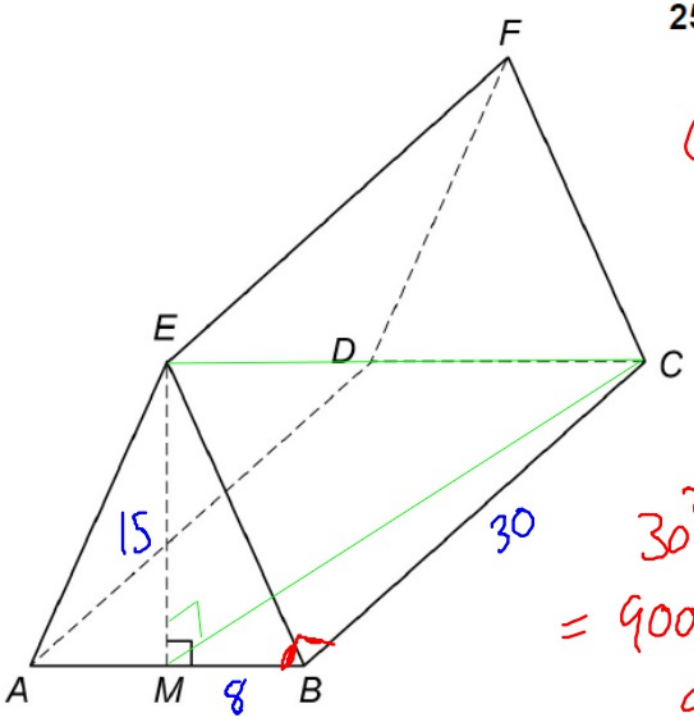
25 Rectangle *ABCD* is the horizontal base of a triangular prism *ABCDEF*.

Video created by W Neill

AE = *BE*

E is vertically above *M*, the midpoint of *AB*.

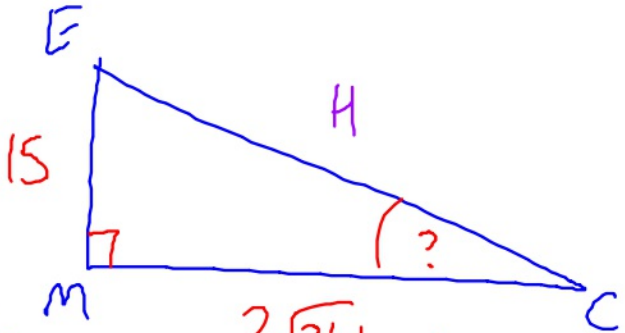
AB = 16 cm *AE* = 17 cm *BC* = 30 cm



25 (b) Work out the size of angle *ECM*. **[4 marks]**

SOH CAH TOA ✓

662



$2\sqrt{241}$

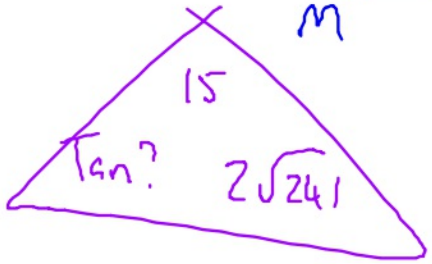
A

$30^2 + 8^2$

$= 900 + 64$

964

$\sqrt{964} =$



$\text{Tan}? = 0.48$

$? = \text{Tan}^{-1} 0.48$

Answer 25.8° ✓ degrees

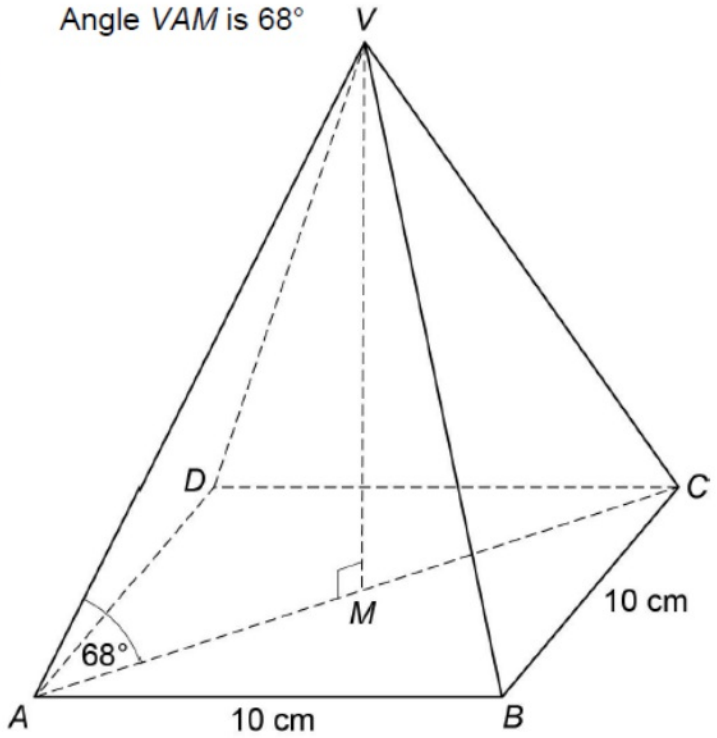
27 *VABCD* is a square-based pyramid.

The horizontal base *ABCD* has side length 10 cm and centre *M*.

G34 Angle *VMA* is 90°

G61 Angle *VAM* is 68°

G62



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

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

Answer _____ cm^3

27 *VABCD* is a square-based pyramid.

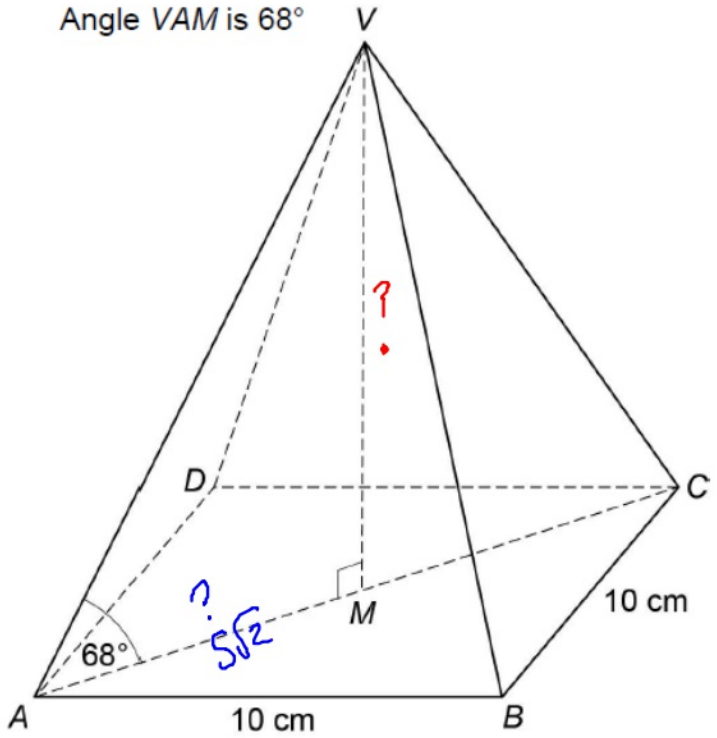
The horizontal base *ABCD* has side length 10 cm and centre *M*.

G34 Angle *VMA* is 90°

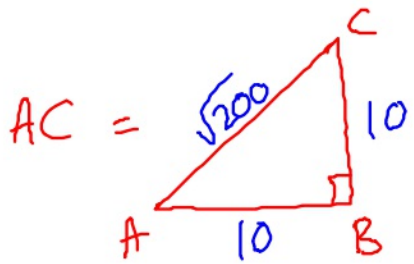
G61 Angle *VAM* is 68°

G62

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



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

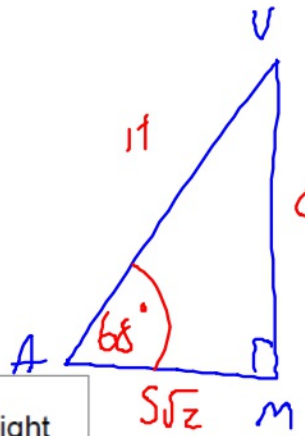


$10^2 + 10^2 = AC^2$

$200 = AC^2$

$\sqrt{200} = AC$

$AM = \frac{\sqrt{200}}{2} = 5\sqrt{2}$



$O = VH = 17.50\text{ cm}$

$Vol = \frac{1}{3} \times 100 \times 17.50\ldots$

583.38 ✓

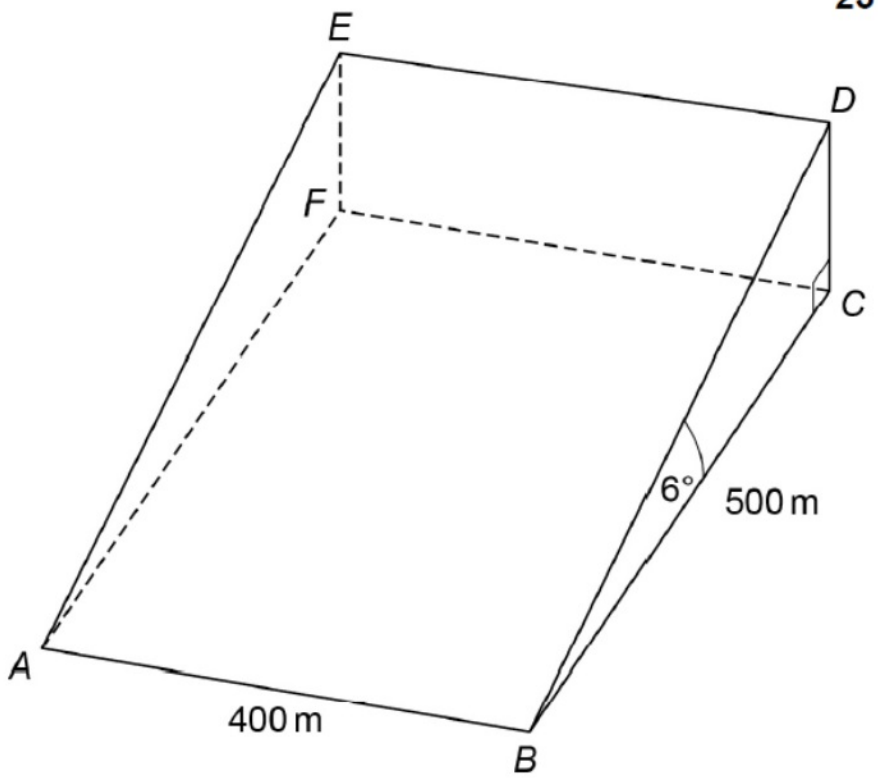
Answer _____ cm^3

Video created by W Neill

25 *ABCDEF* is a triangular prism which represents part of a hill.

ABCF is the horizontal rectangular base.

D is vertically above *C*.



25 (b) Jamil walks in a straight line from *A* to *D*.

G62 Work out the size of angle *DAC*.

You **must** show your working. **[4 marks]**

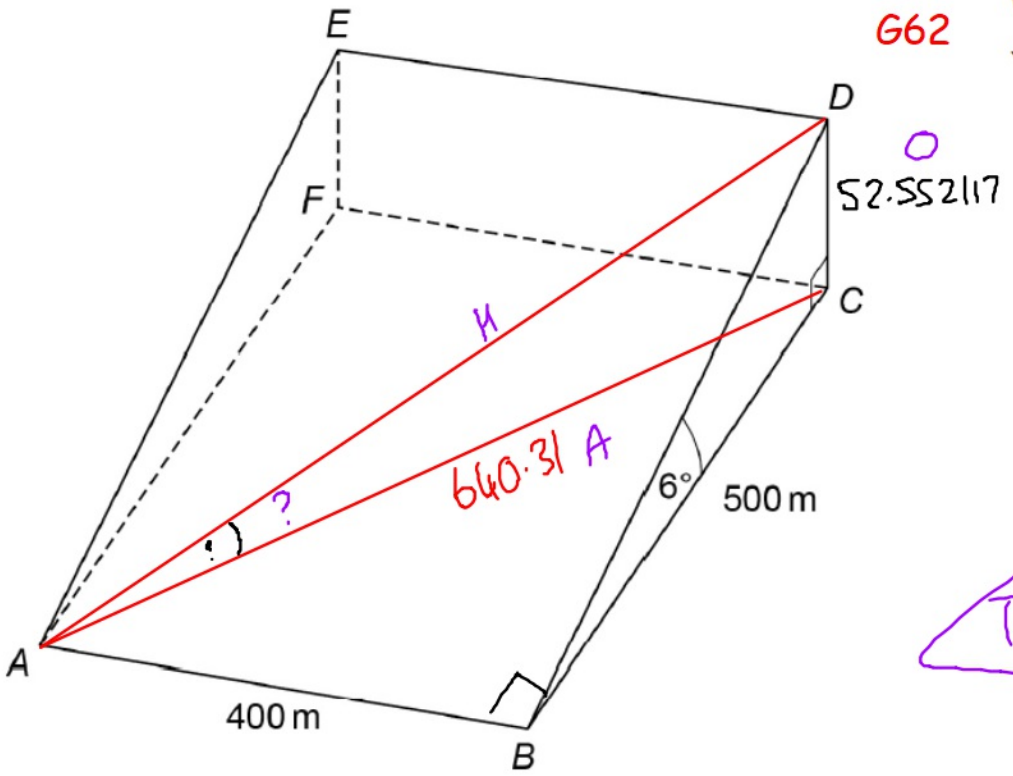
Answer _____ m

Video created by W Neill

25 *ABCDEF* is a triangular prism which represents part of a hill.

ABCF is the horizontal rectangular base.

D is vertically above *C*.

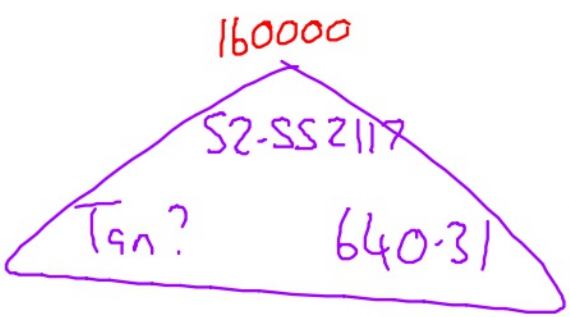


25 (b) Jamil walks in a straight line from *A* to *D*.

Work out the size of angle *DAC*.

You **must** show your working.

[4 marks]



$\tan x = 0.08\ldots$

$x = \tan^{-1} 0.08$

$x = 4.69^{\circ}$

Answer 4.69 °