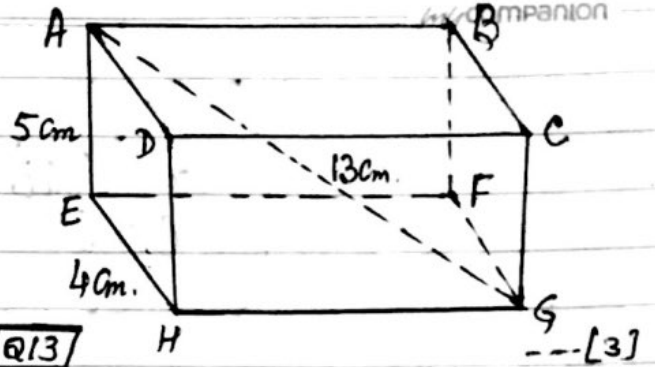


IG-Maths
0580

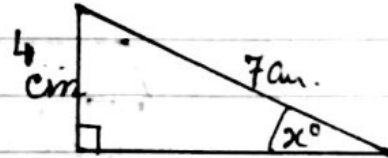
Trigonometry
Exercise-Paper-2

(Suresh Goel)

Q1 The diagram shows a cuboid, ABCDEFGH. $AE = 5\text{cm}$, $EH = 4\text{cm}$ and $AG = 13\text{cm}$. Calculate the angle between the line AG and the base EFGH of the cuboid. [S-17/21/Q13] --- [3]



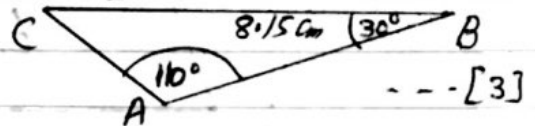
Q2 Calculate the value of x . --- [2]



[S-17/22/Q12]

Q3 Calculate AC.

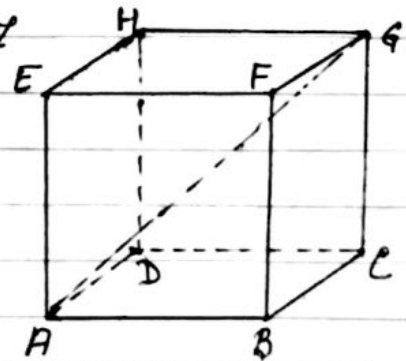
[S-17/22/Q17]



Q4 Calculate $\sqrt{\frac{1}{2}(1 - \cos 48^\circ)}$ --- [1]

[S-17/23/Q1]

Q5 The diagram shows a cube ABCDEFGH of side 26 cm. Calculate the angle between AG and the base of the cube. --- [4]



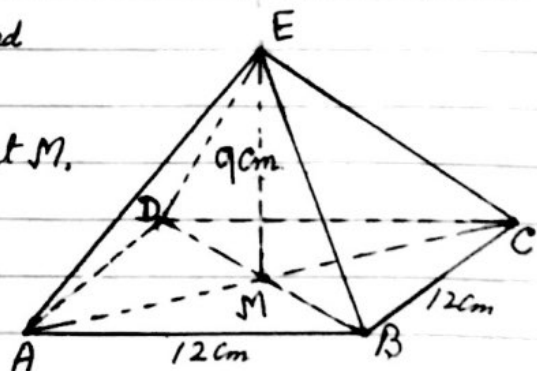
[S-17/23/Q22]

Q6 The diagram shows a square-based pyramid ABCDE.

The diagonals of the square meet at M. E is vertically above M.

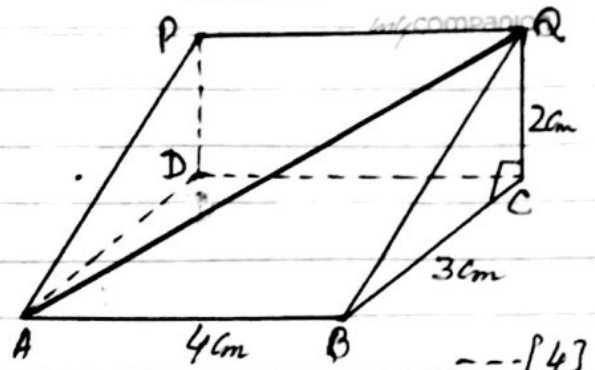
$AB = BC = 12\text{cm}$, and $EM = 9\text{cm}$.

Calculate the angle between the edge EC and the base, ABCD, of the pyramid.



[W-17/21/Q21] --- [4]

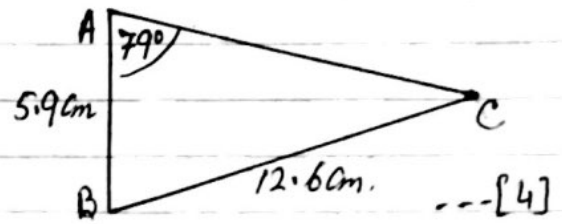
Q7 The diagram shows a prism of length 4 cm. The cross section is a right-angled triangle, $BC = 3$ cm and $CQ = 2$ cm. Calculate the angle between the line AQ and the base, $ABCD$, of the prism.



W-17/22/Q26 [4]

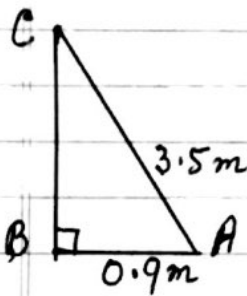
Q8 Calculate angle ABC .

W-17/23/Q18



[4]

Q9 Calculate angle BAC .

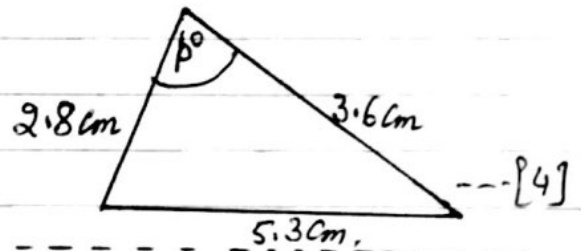


[2]

M-16/22/Q3

Q10 Find the value of p .

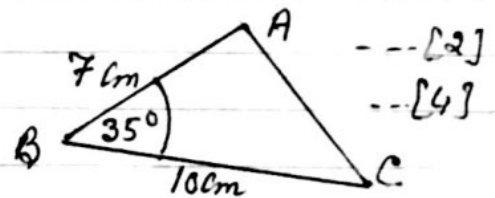
M-16/22/Q15



[4]

Q11 (a) Calculate the area of triangle ABC .
(b) Calculate the length of AC .

S-16/21/Q26

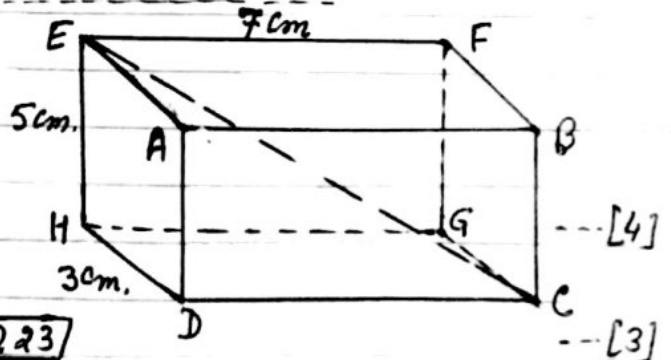


[2]

[4]

Q12 The diagram shows a cuboid, $HD = 3$ cm, $EH = 5$ cm, and $EF = 7$ cm. Calculate (a) the length CE ,
(b) the angle between CE and the base $CDHG$.

S-16/23/Q23



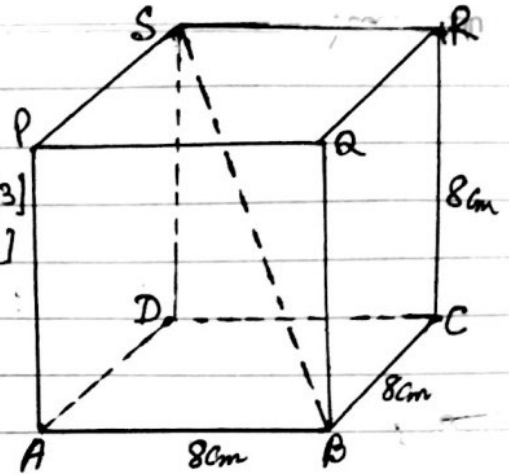
[4]

[3]

Exercise 2

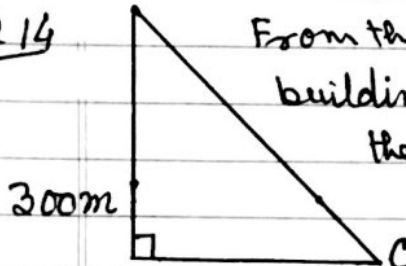
Q13 The diagram shows a cube of side length 8cm.

- (a) Calculate the length of the diagonal BS . --- [3]
 (b) Calculate angle SBD . --- [2]



W-16/21/Q24

Q14

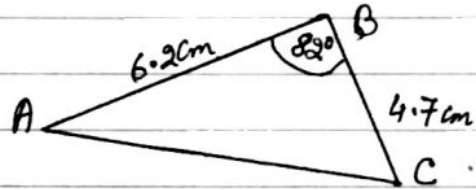


From the top of a building, 300 metres high, the angle of depression of a car, C, is 52° .

Calculate the horizontal distance from the car to the base of the building. --- [3]

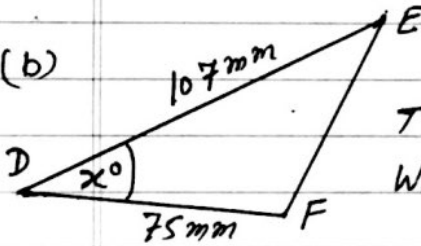
W-16/22/Q9

Q15(a) Calculate the area of triangle ABC.



--- [2]

(b)



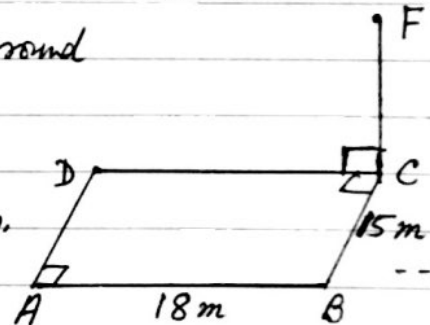
The area of triangle DEF is 2050 mm^2 .
 Work out the value of x .

--- [2]

W-16/23/Q21

Q16 The diagram shows a rectangular playground ABCD on horizontal ground.

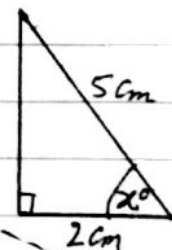
A vertical flagpole CF, 6 metre high, stands in corner C. $AB = 18\text{m}$ and $BC = 15\text{m}$.
 Calculate the angle of elevation of F from A.



--- [4]

M-15/22/Q18

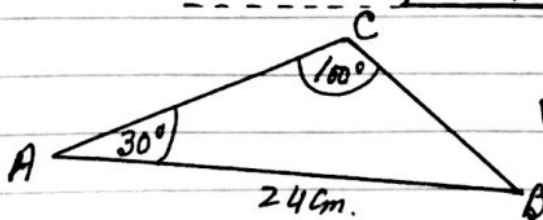
Q17 Calculate the value of x .



--- [2]

S-15/23/Q3

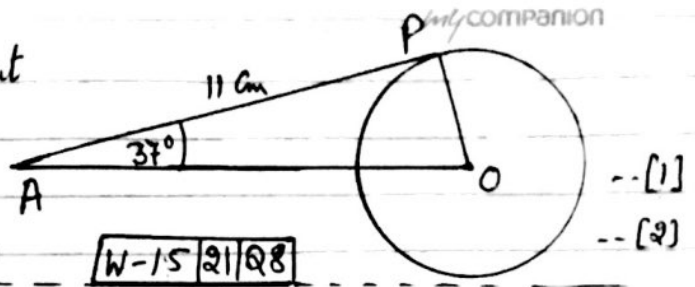
Q18



Use sine rule to calculate BC. --- [3]

S-15/23/Q11

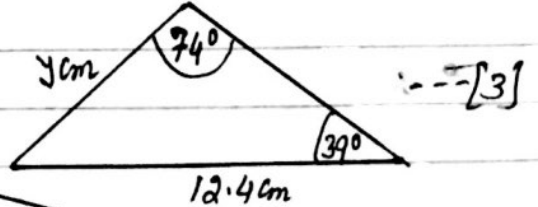
Q19 In the diagram, AP is a tangent to the circle at P. $AP = 11\text{cm}$



- (a) Write down the size of angle OPA, -- [1]
 (b) Work out the radius of the circle. -- [2]

W-15/21/Q8

Q20 Calculate the value of y .



W-15/22/Q13

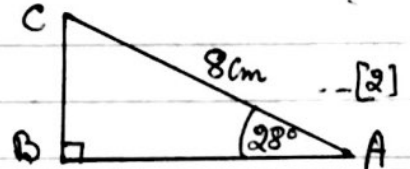


Calculate the value of x .

W-15/23/Q9 - [2]

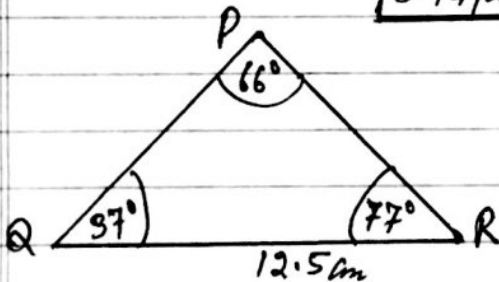
Q22 A triangle has sides of length 2 cm, 8 cm and 9 cm. Calculate the value of the largest angle in this triangle. S-14/21/Q11 --- [4]

Q23 Calculate the length of AB.



S-14/22/Q4

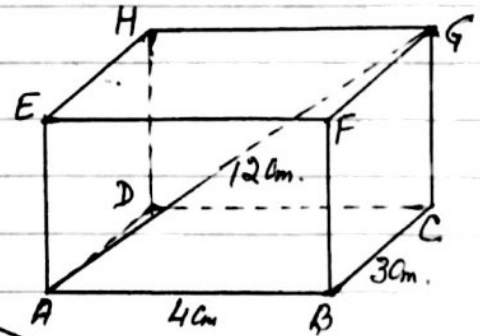
Q24



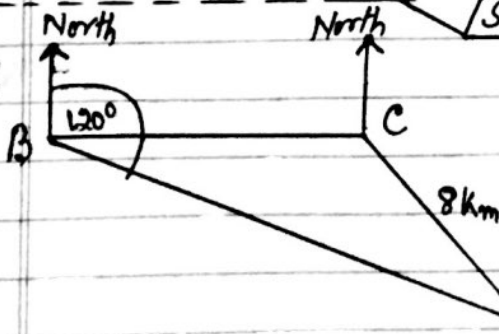
Calculate PR.

S-14/23/Q14

Q25 ABCDEFGH is a cuboid.
 $AB = 4\text{cm}$, $BC = 3\text{cm}$, and $AG = 12\text{cm}$
 Calculate the angle that AG makes with the base ABCD. --- [4]



Q26



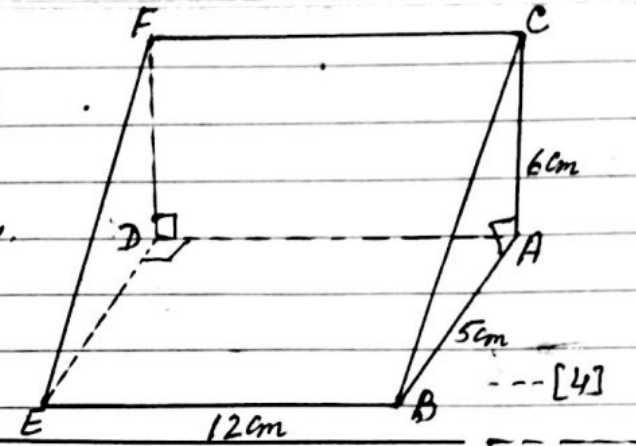
A helicopter flies from its base B to deliver supplies to two oil rigs at C and D. ... [5]

C is 6 km due east of B and the distance C to D is 8 km. D is on a bearing of

120° from B. Find the bearing of D from C.

W-14/21/Q16

Q27 The diagram shows a triangular prism of length 12cm. Triangle ABC is a cross section of the prism. Angle $ABC = 90^\circ$, $AC = 6\text{cm}$ and $AB = 5\text{cm}$. Calculate the angle between the line CE and the base ABED.

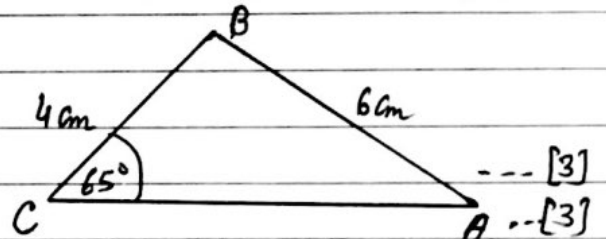


W-13/21/Q23

--- [4]

Q28 In Triangle ABC, $AB = 6\text{cm}$, $BC = 4\text{cm}$ and angle $BCA = 65^\circ$. Calculate -

- (a) angle CAB
- (b) the area of triangle ABC.

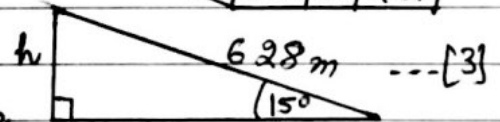


--- [3]

--- [3]

W-13/22/Q21

Q29 Calculate the length h . Give your answer correct to 2 significant figures.



--- [3]

W-13/23/Q10

Answers

- Q1 22.6°
- Q2 34.8°
- Q3 4.34
- Q4 0.407
- Q5 35.3°
- Q6 46.7°

Q7 21.8°

Q8 73.6 ✓ $\left\{ \begin{array}{l} \sin C = 5.9 \sin 79 \\ 12.6 \\ C = ? \end{array} \right.$

180 - (79 + C)

Q9 75.1°

Q10 111.2° $\left\{ \begin{array}{l} \cos B = \frac{2.8^2 + 3.6^2 - 5.3^2}{2 \times 2.8 \times 3.6} \end{array} \right.$

Q11 (a) 20.1 $\left\{ A = \frac{1}{2} \times 7 \times 10 \times \sin 35^\circ \right\}$

(b) 5.86 $\left\{ \begin{array}{l} AC^2 = 7^2 + 10^2 - 2 \times 7 \times 10 \times \cos 35^\circ \end{array} \right.$

Q12 (a) 9.11 $\left[\because AC = \sqrt{3^2 + 5^2 + 7^2} \right]$

(b) 33.3° $\left\{ \sin D = \frac{5}{9.11} = \checkmark \right.$

Q13 (a) 13.9 $\left\{ \because \sqrt{8^2 + 8^2 + 8^2} \right.$

(b) 35.1° $\left\{ \tan D = \frac{8}{\sqrt{8^2 + 8^2}} \right.$

Q14 234m

Q15 (a) 14.4 $[A = \frac{1}{2} \times 6.2 \times 4.7 \times \sin 82^\circ]$

(b) 30.7 $[A = \frac{1}{2} ab \sin C]$

Q16 14.4°

Q17 66.4

Q18 12.2 $\left[\frac{\sin C}{\sin 30^\circ} = \frac{24}{\sin 100^\circ} \right]$

Q19 (a) 90° $[\text{tangent} \perp \text{radius}]$

(b) 8.29 $[\tan 37^\circ = \frac{OP}{11}]$

Q20 8.12 $\left[\frac{y}{\sin 39^\circ} = \frac{12.4}{\sin 74^\circ} \right]$

Q21 23.6° $[\sin x = \frac{2}{5}]$

Q22 113.9 $[\cos B = \frac{8^2 + 2^2 - 9^2}{2 \times 8 \times 2}]$

Q23 7.06 $[\frac{AB}{8} = \cos 28]$

Q24 8.23 $[\frac{PR}{\sin 37^\circ} = \frac{12.5}{\sin 66^\circ}]$

Q25 65.4° $[\cos D = \frac{AC}{AG} = \frac{\sqrt{3^2 + 4^2}}{12}]$

Q26 142°

Q27 24.8° $\left\{ \begin{array}{l} \tan D = \frac{6}{\sqrt{12^2 + 5^2}} \end{array} \right.$

Q28 (a) 37.2° $\left\{ \begin{array}{l} \sin CAB = \frac{\sin 65^\circ}{4} \end{array} \right.$

(b) 11.7 $\left\{ \begin{array}{l} \angle B = 180 - (65 + 37.2) \\ = 77.8^\circ \\ A = \frac{1}{2} \times 4 \times 6 \times \sin 77.8^\circ \end{array} \right.$

Q29 160 $[\frac{h}{628} = \sin 15^\circ]$

