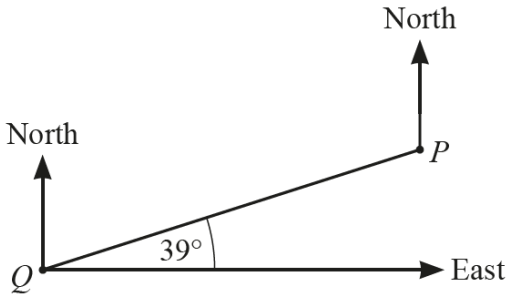
Trigonometry – 2023 Nov IGCSE 0580

1. Nov/2023/Paper_0580/12/No.13, 0580/22/No.7



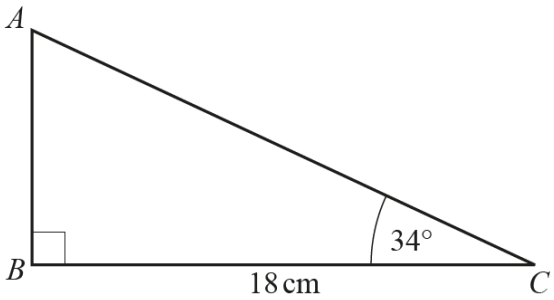
NOT TO SCALE

Find the bearing of Q from P.

..... [2]

2. Nov/2023/Paper_0580/12/No.21

ABC is a right-angled triangle.

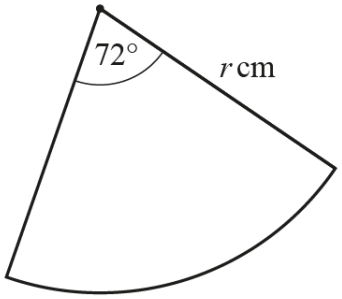


NOT TO SCALE

Calculate AC.

$AC =$ ..... cm [3]

3. Nov/2023/Paper_0580/13/No.20



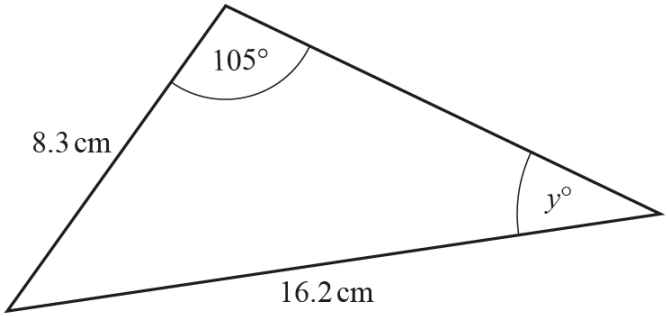
NOT TO
SCALE

The diagram shows a sector of a circle with radius r cm and sector angle 72°.
The arc length is 9.35 cm.

Calculate the value of r.

$r =$ ..... [2]

4. Nov/2023/Paper_0580/21/No.18



NOT TO SCALE

Calculate the value of y.

$y =$ ..... [3]

5. Nov/2023/Paper_0580/21/No.19

(a)

Sketch the graph of $y = \cos x$ for $0° \leqslant x \leqslant 360°$.

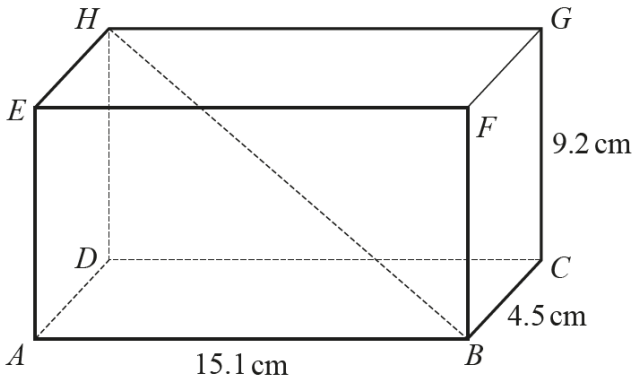
[2]

(b) When $\cos x = 0.21$, find the **reflex** angle x.

.....

[2]

6. Nov/2023/Paper_0580/21/No.21



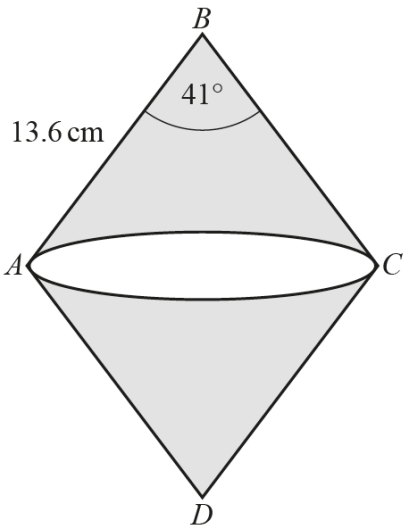
NOT TO SCALE

The diagram shows a cuboid $ABCDEFGH$.
$AB = 15.1$ cm, $BC = 4.5$ cm and $CG = 9.2$ cm.

Calculate the angle that the diagonal BH makes with the face $ADHE$.

..... [4]

7. Nov/2023/Paper_0580/21/No.22



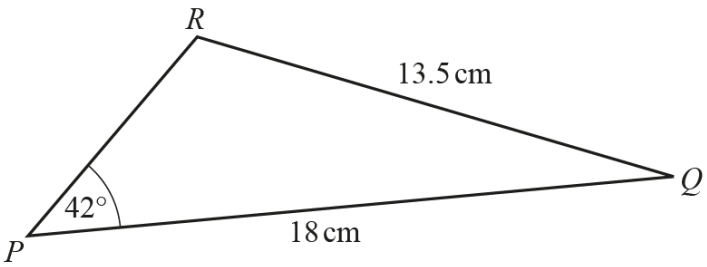
NOT TO SCALE

ABCD is a rhombus with side length 13.6 cm.
Angle $ABC = 41°$.
BAC is a sector of a circle with centre *B*.
DAC is a sector of a circle with centre *D*.

Calculate the shaded area.

..... cm^2 [4]

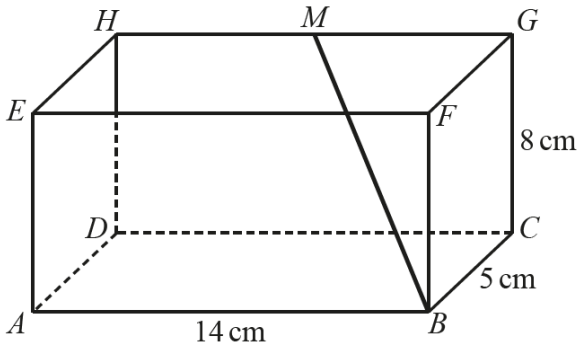
8. Nov/2023/Paper_0580/23/No.19



Calculate the obtuse angle PRQ.

Angle PRQ = ... [4]

9. Nov/2023/Paper_0580/23/No.21



NOT TO SCALE

The diagram shows a cuboid $ABCDEFGH$.
$AB = 14$ cm, $BC = 5$ cm and $CG = 8$ cm.
M is the midpoint of HG.

(a) Calculate BM.

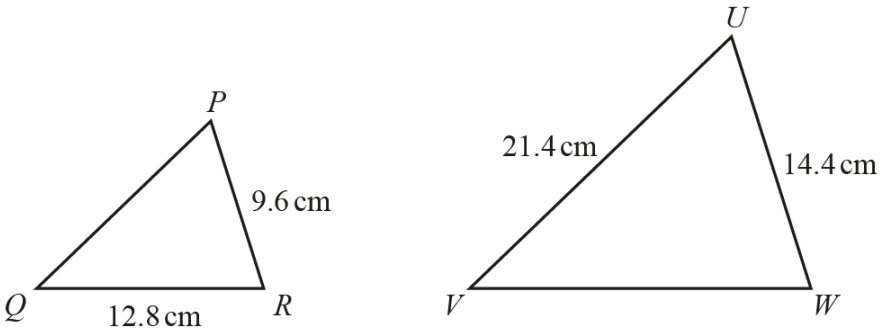
..... cm [3]

(b) Calculate the angle that BM makes with the base $ABCD$.

..... [3]

10. Nov/2023/Paper_0580/31/No.10

(a)



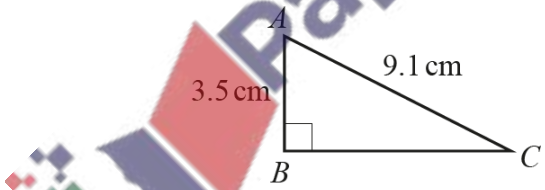
NOT TO SCALE

Triangle PQR is mathematically similar to triangle UVW.

Calculate VW.

$VW =$ ..... cm [2]

(b) ABC is a right-angled triangle.

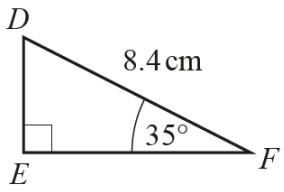


NOT TO SCALE

Calculate BC.

$BC =$ ..... cm [3]

(c) *DEF* is a right-angled triangle.

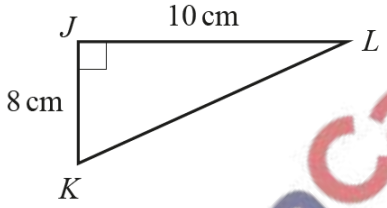


NOT TO SCALE

Calculate *EF*.

EF = ...cm [2]

(d) *JKL* is a right-angled triangle.



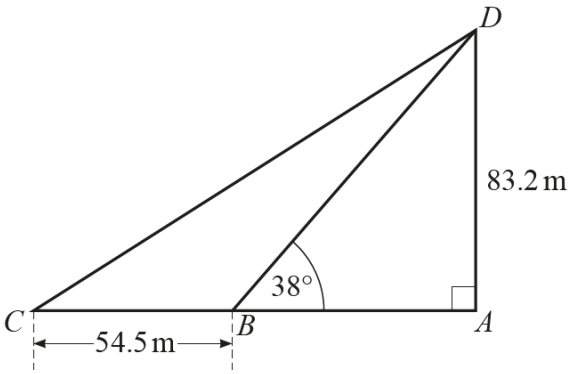
NOT TO SCALE

Calculate angle *JKL*.

Angle *JKL* = ... [2]

11. Nov/2023/Paper_0580/41/No.5

(a)



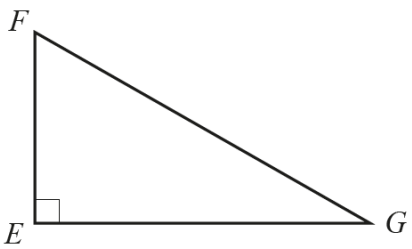
NOT TO SCALE

ACD is a right-angled triangle.
B is on AC and $BC = 54.5$ m.
$AD = 83.2$ m and angle $ABD = 38°$.

Calculate angle ACD.

Angle ACD = ... [5]

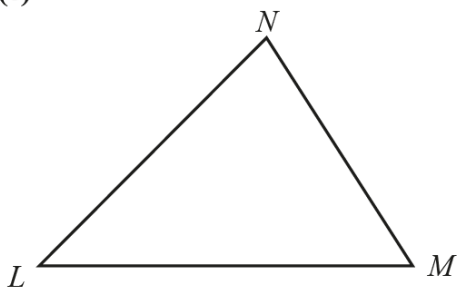
(b)

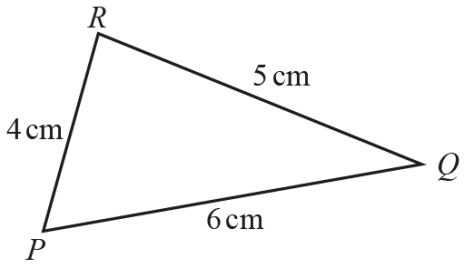


EFG is a right-angled triangle.
A circle can be drawn that passes through the three vertices of the triangle.

On the diagram, mark the position of the centre of the circle with a cross.
Explain how you decide.

(c)





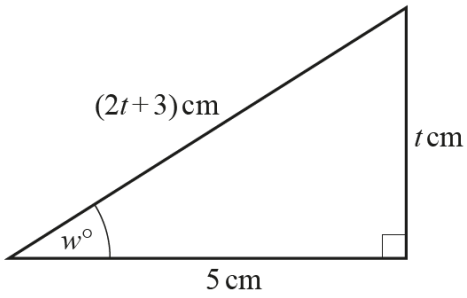
NOT TO SCALE

In triangle LMN, the ratio angle L : angle M : angle $N = 4 : 5 : 6$.
In triangle PQR, $PQ = 6\,\text{cm}$, $PR = 4\,\text{cm}$ and $QR = 5\,\text{cm}$.

Calculate the difference between the largest angle in triangle PQR and the largest angle in triangle LMN.

..... [7]

12. Nov/2023/Paper_0580/42/No.6



NOT TO SCALE

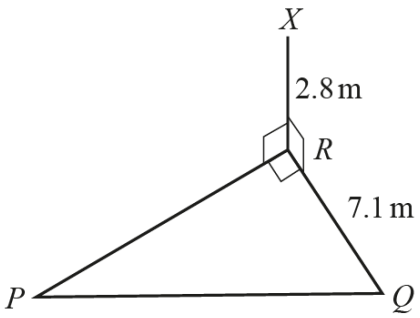
The diagram shows a right-angled triangle.

Find the value of w.

$w =$ ..... [7]

13. Nov/2023/Paper_0580/42/No.7

(a)



NOT TO SCALE

The diagram shows a right-angled triangle PQR on horizontal ground.
X is vertically above R and the angle of elevation of X from P is 21°.
$XR = 2.8$ m and $RQ = 7.1$ m.

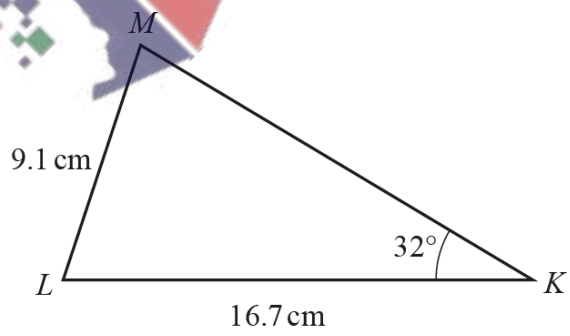
(i) Calculate the angle of elevation of X from Q.

..... [2]

(ii) Calculate PQ.

..... m [3]

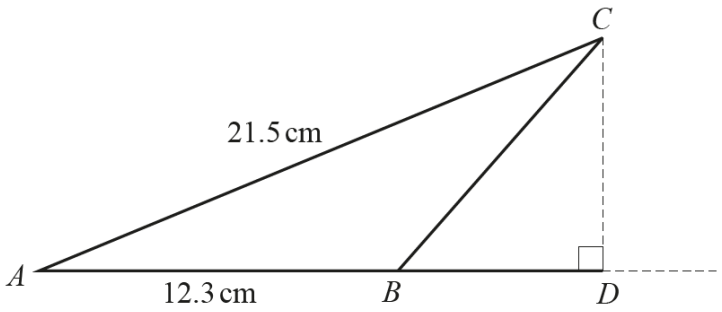
(b)



NOT TO SCALE

Calculate the acute angle KML.

(c)



NOT TO SCALE

The area of triangle ABC is $62.89\,\text{cm}^2$.

(i) Show that angle $BAC = 28.4°$, correct to 1 decimal place.

[2]

(ii) Calculate BC.

..... cm [3]

(iii) AB is extended to a point D such that angle $BDC = 90°$.

Calculate BD.