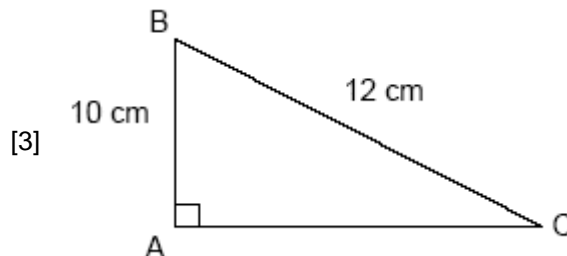
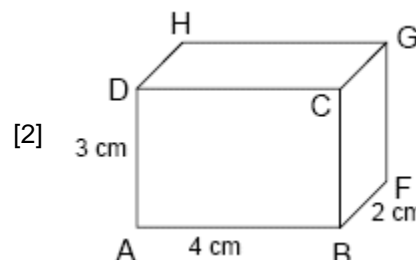


1. (a) Calculate the length AC.

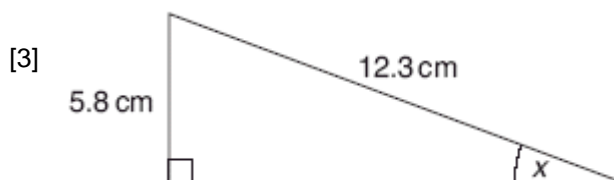


- (b) A cuboid, ABCDEFGH, has sides 2 cm, 3 cm and 4 cm.

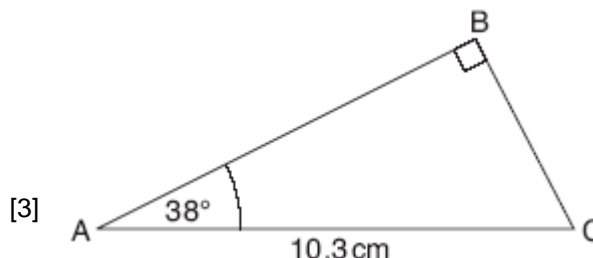
Calculate the length of the diagonal AG.



2. (a) Calculate the size of angle x.



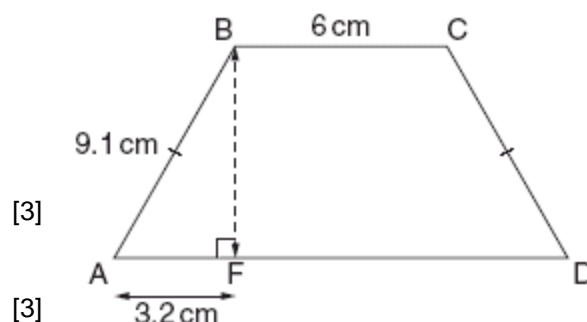
- (b) Calculate the length AB.



3. (a) ABCD is an isosceles trapezium. BF is perpendicular to AD.

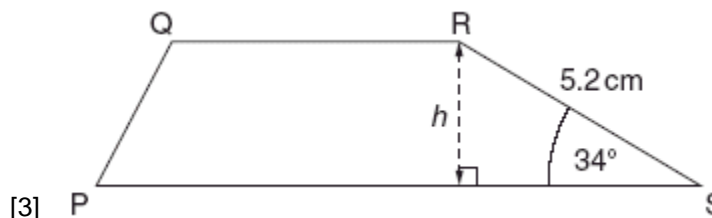
- (i) Calculate BF.

- (ii) Calculate the area of ABCD.



- (b) PQRS is a trapezium.

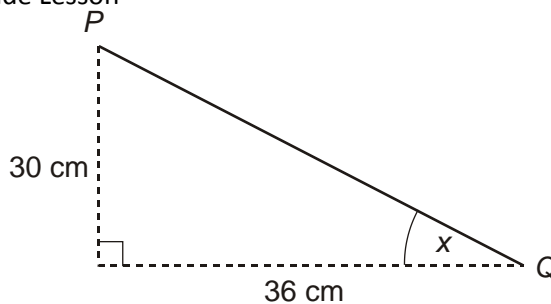
Calculate h .



4. (a)

A handrail, PQ , makes an angle x with the horizontal.

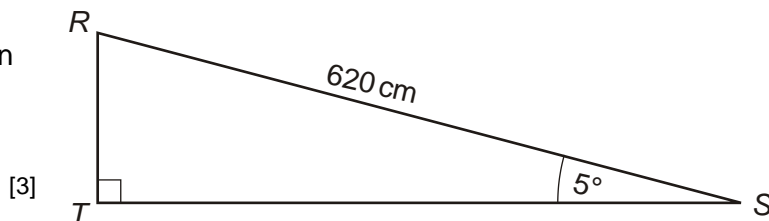
Calculate angle x .



[3]

(b) Some steps are replaced by a ramp, RS . The ramp measures 620cm and makes an angle of 5° with the horizontal.

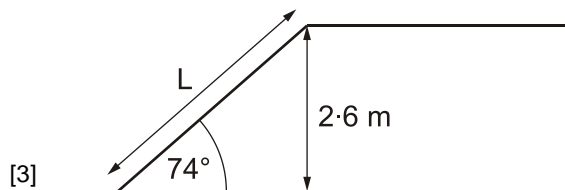
Calculate RT .



[3]

5. A loft ladder makes an angle of 74° with the floor. The distance between the floor and the ceiling is 2.6 m.

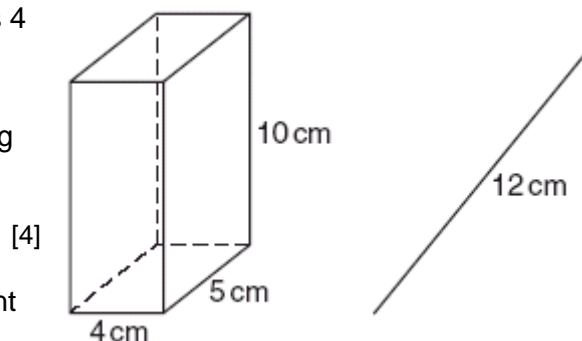
Calculate the length, L , of the loft ladder.



[3]

6. An empty box is a cuboid with internal measurements 4 cm by 5 cm by 10 cm.

Is it possible to fit a thin, straight rod that is 12 cm long entirely inside the box?
Use calculations to show how you decide.

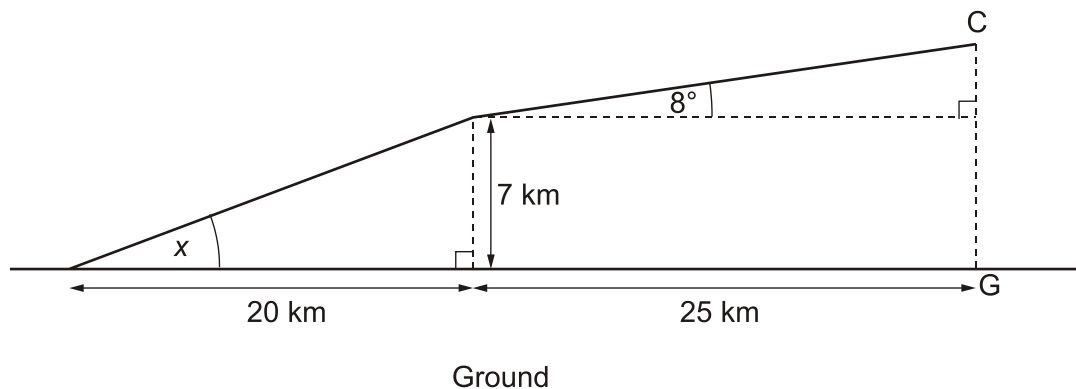


[4]

7. An aeroplane takes off and climbs to its cruising height in two stages.

Stage one: the aeroplane climbs to a height of 7 km and covers a horizontal distance of 20 km.

Stage two: the aeroplane climbs at an angle of 8° to the horizontal and covers a horizontal distance of 25 km.



(a) Calculate x , the angle of climb in stage one.
You must show your method.

[3]

(b) Calculate CG , the cruising height of the aeroplane.
You must show your method.

[3]

ANSWERS

1. (a) 6.6(3...) (b) 5.4 or 5.3(8...) [5]
2. (a) 28.1 – 28.135 www (b) 8.1 – 8.12 [6]
3. (a) (i) 8.5 (ii) 78.4 (b) 2.9 – 2.91 [9]
4. (a) 39.8 to 40(°) (b) 54 to 54.1 cm [9]
5. $\sin 74 = 2.6 / L$ $2.6 / \sin 74$ [6]
 $2.7(047\dots)$
6. $(\sqrt{)4^2 + 5^2 + 10^2}$ $\sqrt{141} < 12,$ No [3]
7. (a) $\tan x = 7/20$ [4]
 $x = \tan^{-1} 7/20 = 19.3$
- (b) $\tan 8 = h/25$ $h = 3.5\dots$
CG = 10.5 [6]