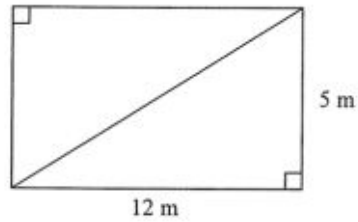
Pythagoras Theorem

Answers

1

June 2017 Higher Non-Calc Paper 1

This rectangular frame is made from 5 straight pieces of metal.

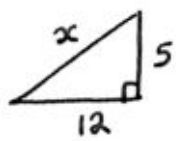


The weight of the metal is 1.5 kg per metre.

Work out the total weight of the metal in the frame.

length of metal = 5 + 12 + 5 + 12 + diagonal

= 34 + diagonal



$a^2 + b^2 = c^2$

$12^2 + 5^2 = x^2$ (1)

$144 + 25 = x^2$

$169 = x^2$

$x = \sqrt{169} = 13$ (1)

Total length = 34 + 13 = 47 (1)

Weight of 1 m = 1.5 kg

Weight of 47 m = 1.5 × 47 (1)

= 70.5 kg (1)

47
× 15
235
470
705

..... kg

2 Here is part of a field.

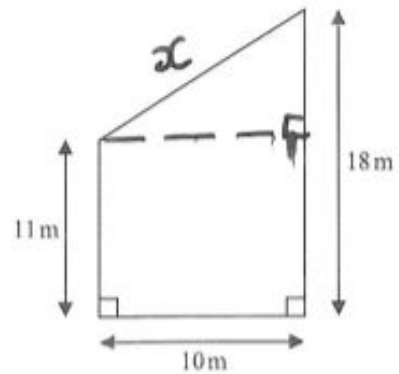


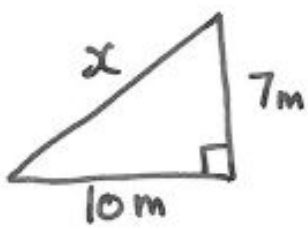
Diagram NOT accurately drawn

This part of the field is in the shape of a trapezium.
A farmer wants to put a fence all the way around the edge of this part of the field.

The farmer has 50 m of fence.

Does he have enough fence?
You must show all your working.

Perimeter = $11+10+18+x = 39+x$



$18-11=7$

$10^2+7^2=x^2$ (1)

$x^2 = 149$

$x = \sqrt{149} = 12.2065556157$ (1)

$P = 39+12.2065556157$

$= \underline{51.2065556157\text{ m}}$ (1)

The farmer only has 50 m so No. (1)

(Total for Question 7 is 5 marks)