

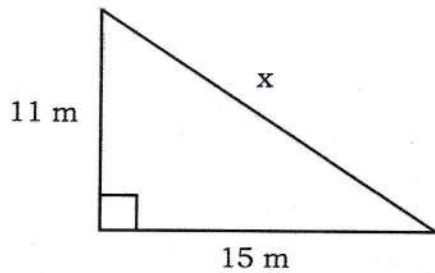
PYTHAGORAS - PRACTICE QUESTIONS
CALCULATOR ALLOWED



metatutor

1.

Find x to the nearest metre.



$$11^2 = 121$$

$$15^2 = 225$$

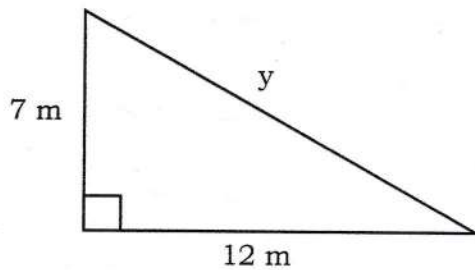
$$+ = 346$$

$$\sqrt{346} = 18.601\dots$$

$$\underline{x = 19\text{ m}}$$

2.

Find y to the nearest metre.



$$7^2 = 49$$

$$12^2 = 144$$

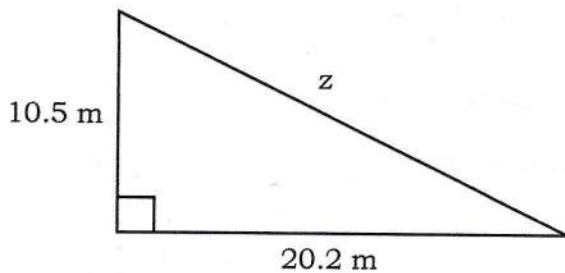
$$+ = 193$$

$$\sqrt{193} = 13.892\dots$$

$$\underline{y = 14\text{ m}}$$

3.

Find z to 1 decimal place.



$$10.5^2 = 110.25$$

$$20.2^2 = 408.04$$

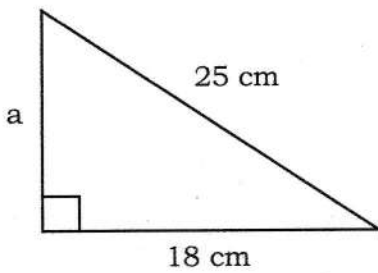
$$+ = 518.29$$

$$\sqrt{518.29} = 22.765\dots$$

$$\underline{= 22.8\text{ m}}$$

4.

Find a to the nearest centimetre.



$$25^2 = 625$$

$$18^2 = 324$$

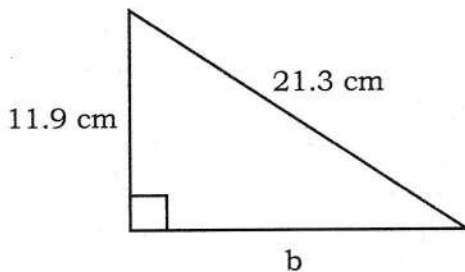
$$- = 301$$

$$\sqrt{301} = 17.349\dots$$

$$= \underline{17 \text{ cm}}$$

5.

Find b to 1 decimal place.



$$21.3^2 = 453.69$$

$$11.9^2 = 141.61$$

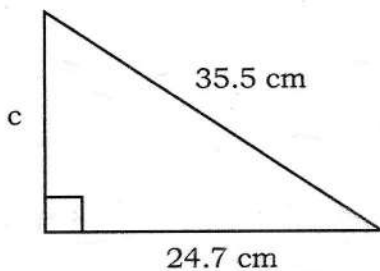
$$- = 312.08$$

$$\sqrt{312.08} = 17.6657\dots$$

$$= \underline{17.7 \text{ cm}}$$

6.

Find c to 1 decimal place.



$$35.5^2 = 1260.25$$

$$24.7^2 = 610.09$$

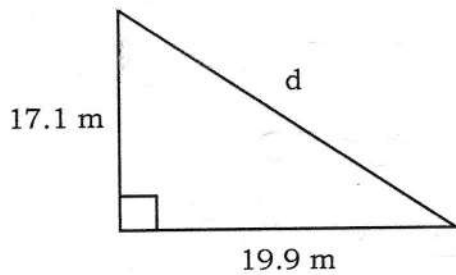
$$- = 650.16$$

$$\sqrt{650.16} = 25.4982\dots$$

$$= \underline{25.5 \text{ cm}}$$

7.

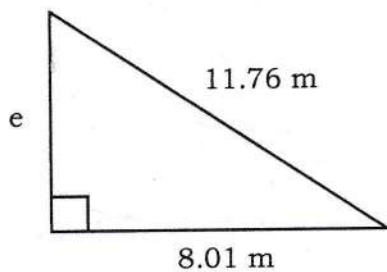
Find d to 1 decimal place.



$$\begin{aligned} 17.1^2 &= 292.41 \\ 19.9^2 &= 396.01 \\ + &= 688.42 \\ \sqrt{688.42} &= 26.2377\dots \\ &= \underline{26.2 \text{ m}} \end{aligned}$$

8.

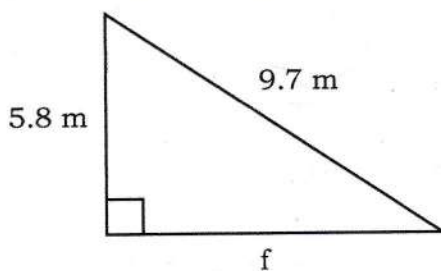
Find e to 2 decimal places.



$$\begin{aligned} 11.76^2 &= 138.2976 \\ 8.01^2 &= 64.1601 \\ - &= 74.1375 \\ \sqrt{74.1375} &= 8.6103\dots \\ &= \underline{8.61 \text{ m}} \end{aligned}$$

9.

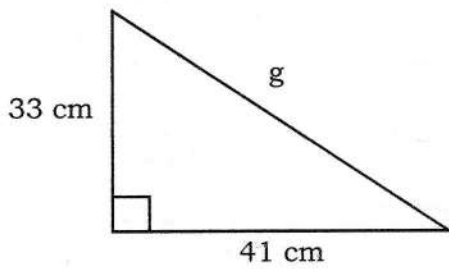
Find f to 2 significant figures.



$$\begin{aligned} 9.7^2 &= 94.09 \\ 5.8^2 &= 33.64 \\ - &= 60.45 \\ \sqrt{60.45} &= 7.77495\dots \\ &= \underline{7.8 \text{ m}} \end{aligned}$$

10.

Find g to 2 significant figures.



$$33^2 = 1089$$

$$41^2 = 1681$$

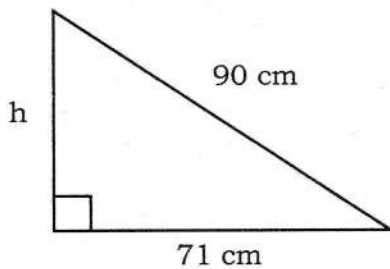
$$+ = 2770$$

$$\sqrt{2770} = 52.630\dots$$

$$= \underline{53 \text{ cm}}$$

11.

Find h to 2 significant figures.



$$90^2 = 8100$$

$$71^2 = 5041$$

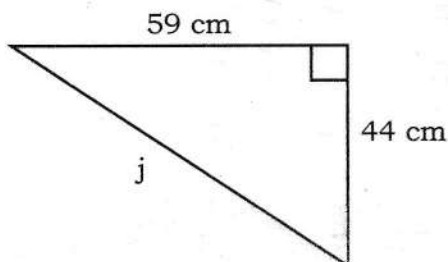
$$- = 3059$$

$$\sqrt{3059} = 55.308\dots$$

$$= \underline{55 \text{ cm}}$$

12.

Find j to 2 significant figures.



$$59^2 = 3481$$

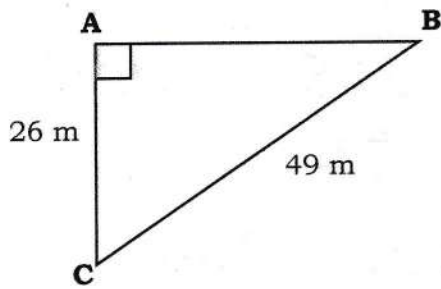
$$44^2 = 1936$$

$$+ = 5417$$

$$\sqrt{5417} = 73.6002\dots$$

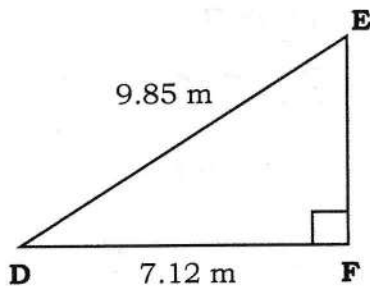
$$= \underline{74 \text{ cm}}$$

13.
Find AB to 2 significant figures.



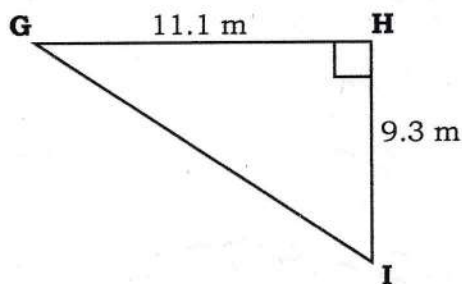
$$\begin{aligned}
 49^2 &= 2401 \\
 26^2 &= 676 \\
 - &= 1725 \\
 \sqrt{1725} &= 41.533\dots \\
 &= \underline{42 \text{ m}}
 \end{aligned}$$

14.
Find EF to 3 significant figures.



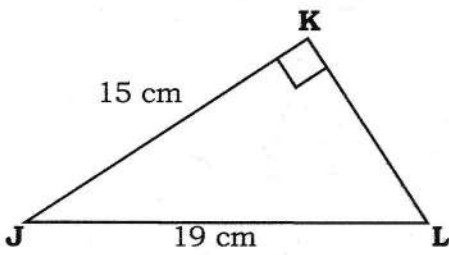
$$\begin{aligned}
 9.85^2 &= 97.0225 \\
 7.12^2 &= 50.6944 \\
 - &= 46.3281 \\
 \sqrt{46.3281} &= 6.8064\dots \\
 &= \underline{6.81 \text{ m}}
 \end{aligned}$$

15.
Find GI to 2 decimal places.



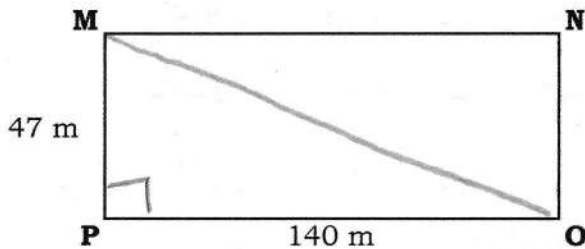
$$\begin{aligned}
 11.1^2 &= 123.21 \\
 9.3^2 &= 86.49 \\
 + &= 209.7 \\
 \sqrt{209.7} &= 14.4810\dots \\
 &= \underline{14.48 \text{ m}}
 \end{aligned}$$

16.
Find KL to 2 significant figures.



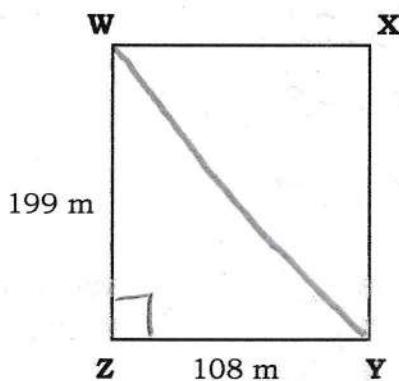
$$\begin{aligned}
 19^2 &= 361 \\
 15^2 &= 225 \\
 - &= 136 \\
 \sqrt{136} &= 11.6619\dots \\
 &= \underline{12 \text{ cm}}
 \end{aligned}$$

17.
MNOP is a rectangle.
Find MO to the nearest metre.



$$\begin{aligned}
 47^2 &= 2209 \\
 140^2 &= 19600 \\
 + &= 21809 \\
 \sqrt{21809} &= 147.67\dots \\
 &= \underline{148 \text{ m}}
 \end{aligned}$$

18.
WXYZ is a rectangle.
Find XZ to 3 significant figures.



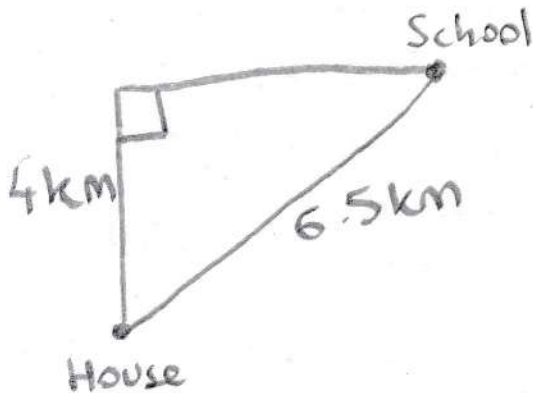
$$\begin{aligned}
 199^2 &= 39601 \\
 108^2 &= 11664 \\
 + &= 51265 \\
 \sqrt{51265} &= 226.4177\dots \\
 &= \underline{226 \text{ m}}
 \end{aligned}$$

19.

Farrah's house is 6.5 kilometres from her school.

To get to school she walks 4 kilometres north and then walks east.

Use Pythagoras' Theorem to work out how many kilometres east Farrah walks, to the nearest kilometre.



$$6.5^2 = 42.25$$

$$4^2 = 16$$

$$- = 26.25$$

$$\sqrt{26.25} = 5.123 \dots$$

$$= \underline{5.1 \text{ km}}$$

20.

Graham has bought a television.

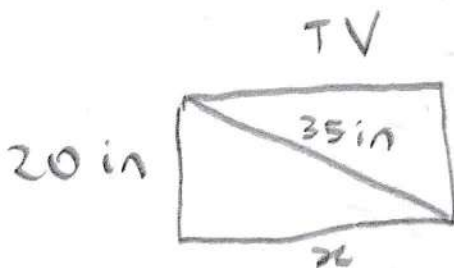
The diagonal length of the television is 35 inches.

The height of the television is 20 inches.

Graham wants to fit the television inside his television cabinet.

The cabinet is 25 inches wide and 22 inches high.

Will the television fit inside the cabinet? Show your working.

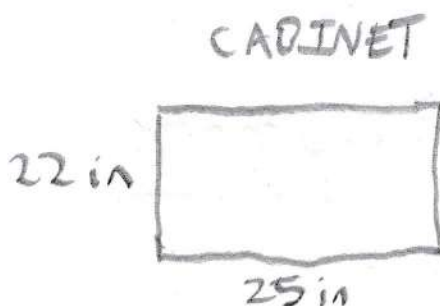


$$35^2 = 1225$$

$$20^2 = 400$$

$$- = 825$$

$$\sqrt{825} = 28.722 \dots \text{ inches}$$

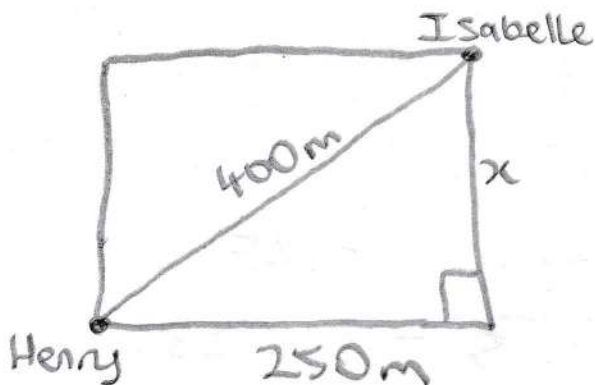


No, the television is wider than the cabinet.

21.

Henry is standing at the opposite corner of a rectangular playing field to Isabelle. The playing field is 250 metres wide. Henry is standing 400 metres from Isabelle.

Work out the area of the playing field.
Give your answer to the nearest square metre.



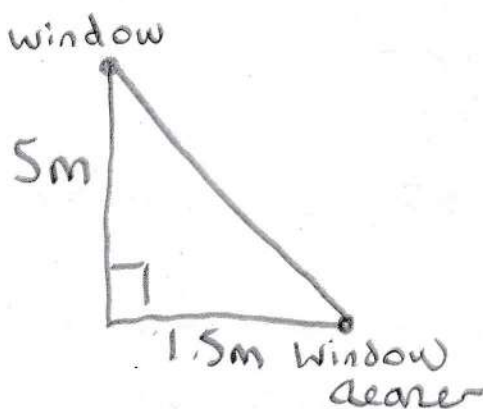
$$\begin{aligned} 400^2 &= 160000 \\ 250^2 &= 62500 \\ - &= 97500 \\ x &= \sqrt{97500} = 312.249... \end{aligned}$$

$$\begin{aligned} \text{Area} &= 312.249... \times 250 \\ &= 78062.47498 \\ &= \underline{\underline{78,062 \text{ m}^2}} \end{aligned}$$

22.

A window cleaner is trying to access a first-floor window of a house using a ladder. The window is 5 metres above ground level. The window cleaner is standing 1.5 metres away from the house.

How long must the ladder be for the window cleaner to be able to reach the window?
Give your answer to 1 decimal place.



$$\begin{aligned} 5^2 &= 25 \\ 1.5^2 &= 2.25 \\ + &= 27.25 \\ \sqrt{27.25} &= 5.2201... \\ &= \underline{\underline{5.2 \text{ metres}}} \end{aligned}$$