Pythagoras

Warm up

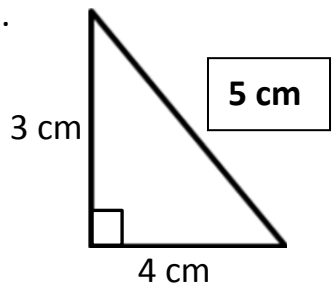
Use your calculator to find the following values. Round your answer to 1 decimal place if it is a decimal.

1. 18^2 = **324**
2. $13^2 + 15^2$ = **394**
3. $21^2 - 17^2$ = **152**
4. $\sqrt{18} =$ **4.2**
5. $\sqrt{18 - 5} =$ **3.6**
6. $\sqrt{21^2 - 16^2} =$ **13.6**

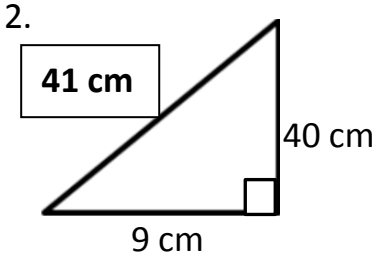
Stage 1

Find the length of the unknown side.

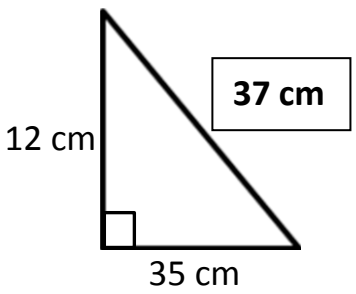
1.



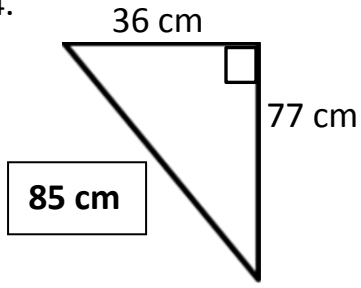
2.



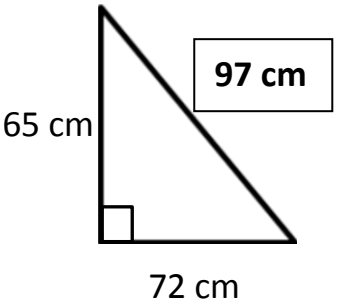
3.



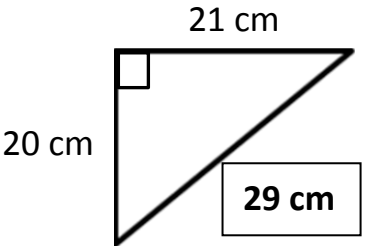
4.



5.



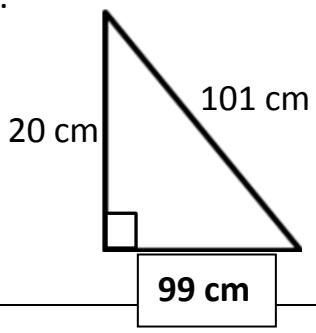
6.



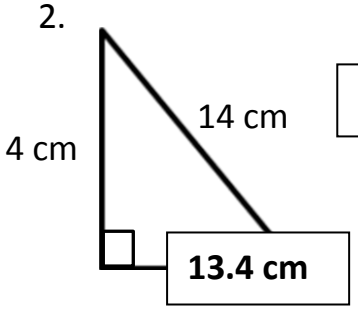
Stage 2

Find the length of the unknown side. Round your answer to 1 decimal place if it is a decimal.

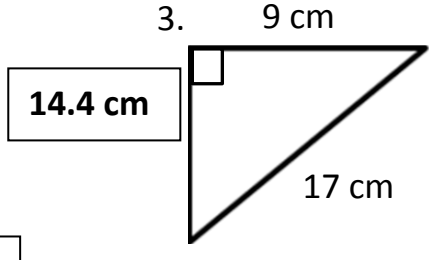
1.



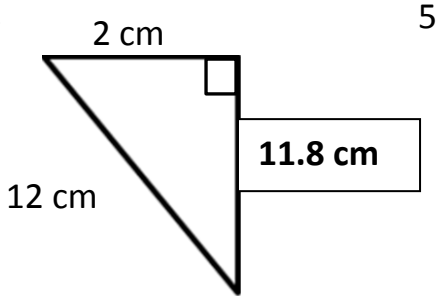
2.



3.

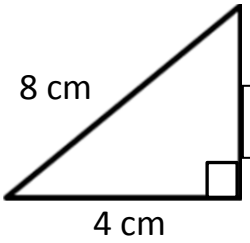


4.



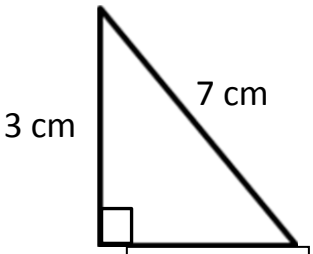
11.8 cm

5.



6.9 cm

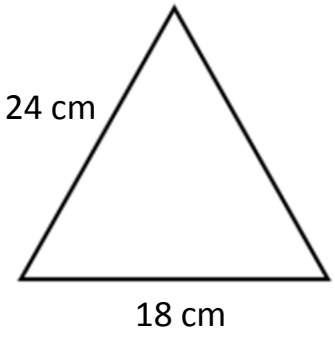
6.



6.3 cm

Stage 3

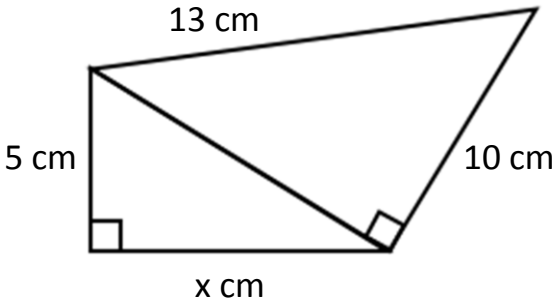
1.



Find the height of the equilateral triangle.

22.2 cm

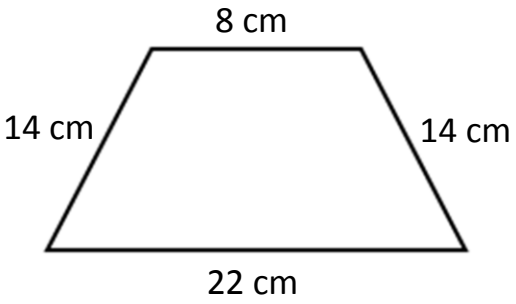
2.



Find length x.

6.6 cm

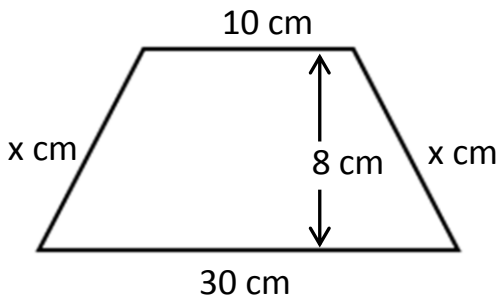
3.



Find the height of the trapezium.

12.1 cm

4.

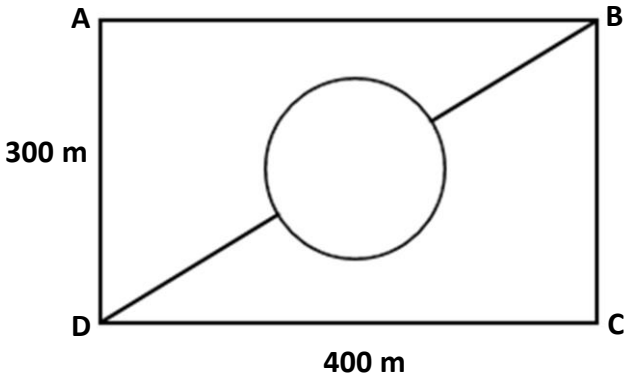


Find the length of side x.

12.8 cm

Stage 4

1. The rectangle below represents a park.



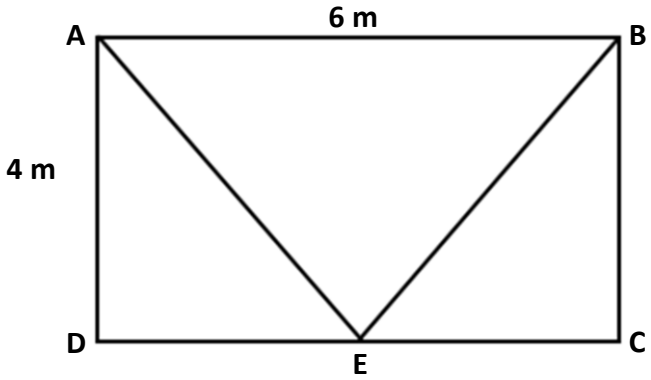
The lines show all the paths in the park.

The circular path is in the centre of a rectangle and has a diameter of 120 m.

Calculate the shortest distance from D to B across the park, using only the paths shown.

757 m

2. A metal frame is made of six metal rods and is shown below.



Point E is half way between C and D.
Calculate the total length of metal needed to make the frame.

30 m

3. A triangle has side lengths 11.2 cm, 15.7 cm and 19.8 cm.
Is this a right angled triangle?
Show how you decide.

$\sqrt{11.2^2 + 15.7^2} = \mathbf{19.3}$ **cm.**

This is <u>shorter</u> than the longest side, so the triangle is <u>not</u> right angled.