Use your calculator or brain to work out these to 2 dp

$\sqrt{4} = 2$ $\sqrt{49} = 7$

$\sqrt{64} = 8$ $\sqrt{24} = 4.90$

$\sqrt{14} = 3.74$

$\sqrt{104} = 10.2$ $\sqrt{400} = 20$

Sorting Equations

Solve these equations:

$14 + x = 21$

$x = 7$

$x + 23 = 41$

$x = 18$

$x^2 + 5 = 21$

$x^2 = 21 - 5$

$x^2 = 16$

$x = 4$

$x^2 + 4 = 104$

$x = 10$

$x^2 + 10 = 90$

$x = 8.9$

$x^2 + 7 = 128$

$x = 11$

$x^2 + 12 = 100$

$x = 9.38$

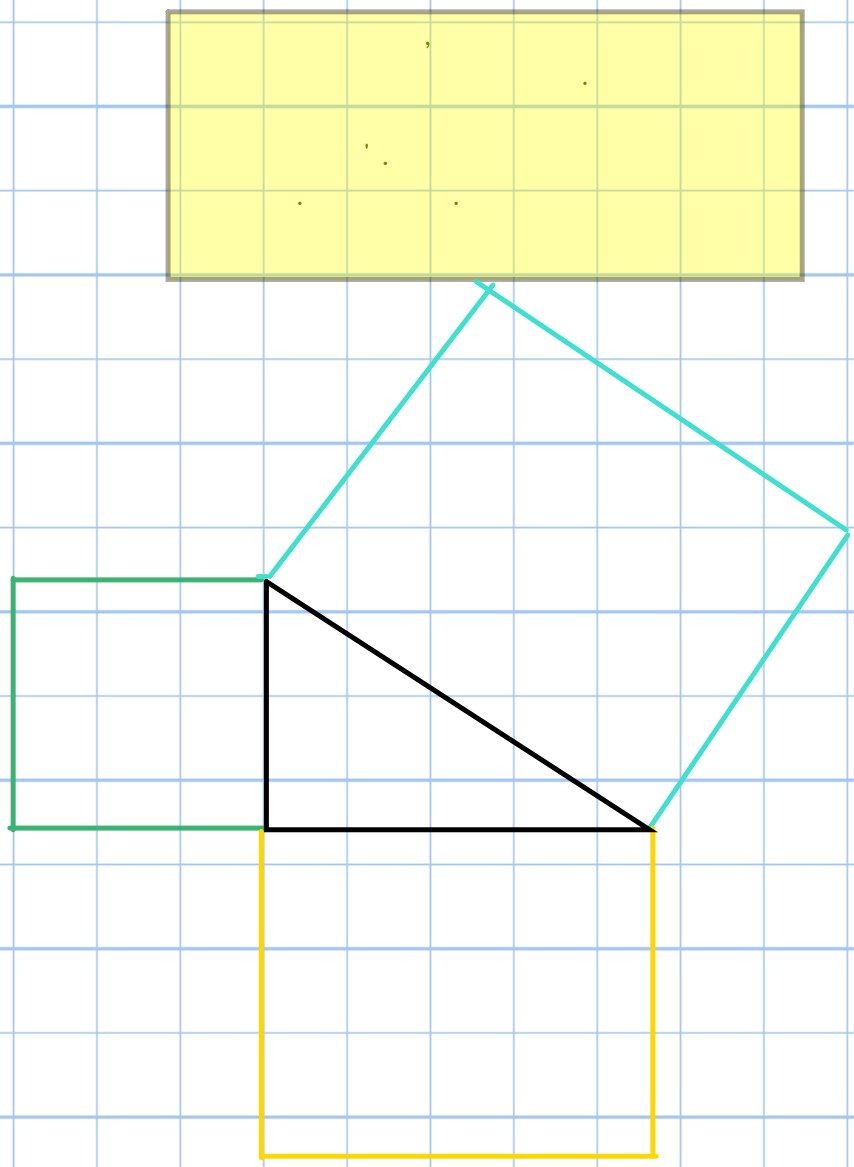
$13 + x^2 = 38$

$x = 5$

$x = 3.16$

$15 + x^2 = 25$

A Very Important Theorem



	4	4	9	9
	9	12.25	16	9
	12.25	16.25	25	17.64

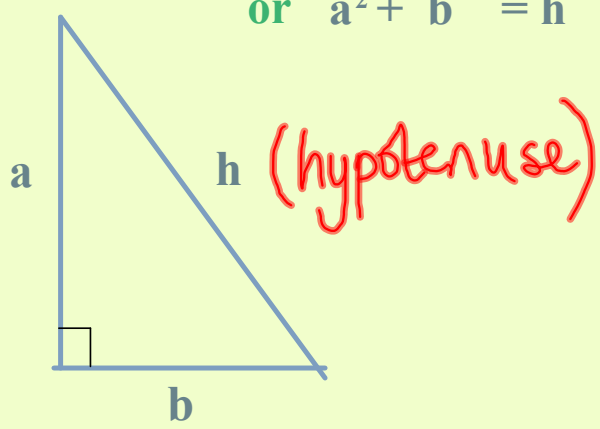
see gsp

Pythagoras' Theorem

Pythagoras' theorem states that: In a right angled triangle the square on the hypotenuse is equal to the sum of the squares on the other two sides.

This means:
short side squared + medium side squared = long side squared

or $a^2 + b^2 = h^2$



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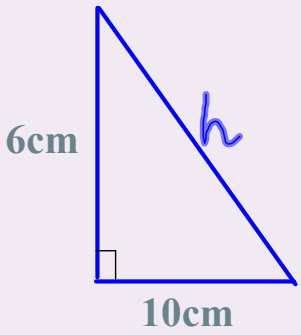
page 68 B4, B5

see attachment

Using Pythagoras' Theorem



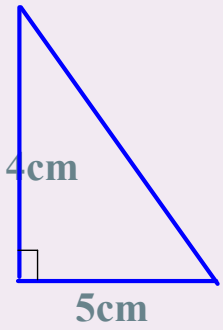
$a^2+b^2=h^2$

$6^2+10^2=h^2$

$36+100=h^2$

$136=h^2$

$11.66_{cm}=h$

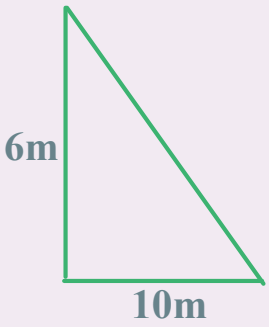


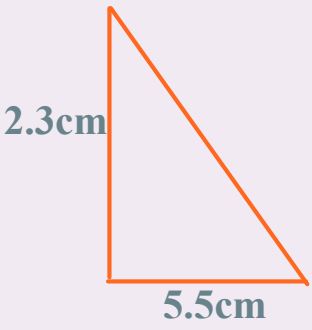
$a^2+b^2=h^2$

$4^2+5^2=h^2$

$16+25=h^2$

$h=6.4cm$





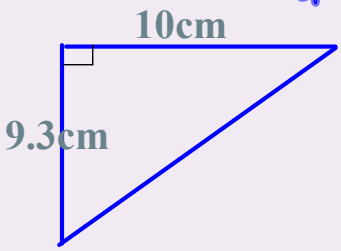
$a^2+b^2=h^2$

$2.3^2+5.5^2=h^2$

$5.29+30.25=h^2$

$35.54=h^2$

$h=6.0\,cm$

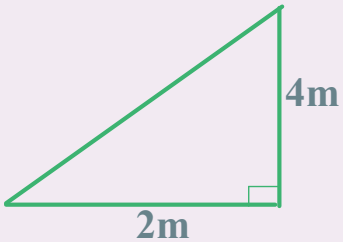


$a^2+b^2=h^2$

$9.3^2+10^2=h^2$

$86.49+100=h^2$

$h=13.7cm$

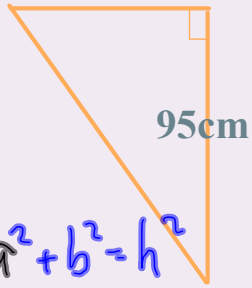


$a^2+b^2=h^2$

$4+16=h^2$

$20=h^2$

$h=4.5m$

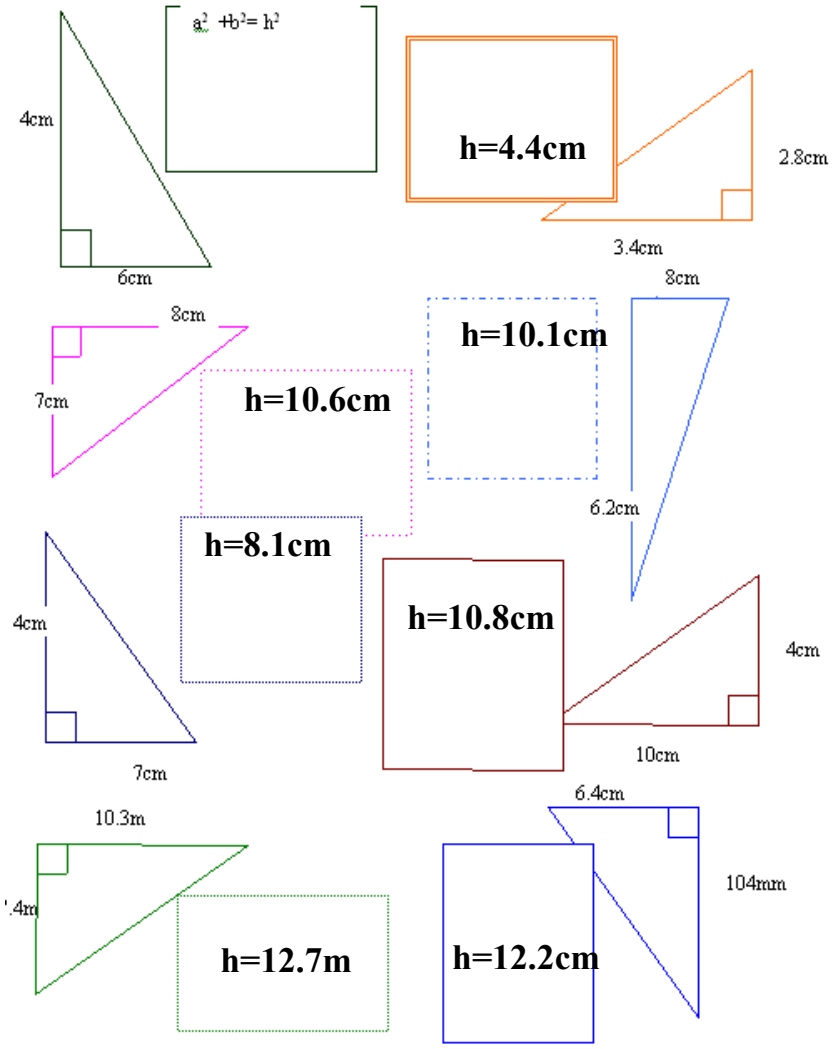


$a^2+b^2=h^2$

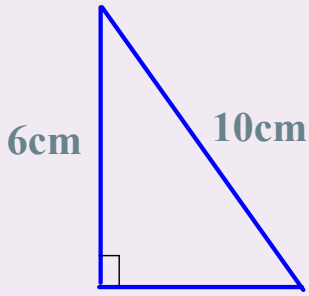
$100^2+95^2=h^2$

$19025=h^2$

$137.9_{cm}=h$


a² +b²= h²
4cm
6cm
h=4.4cm
2.8cm
3.4cm
8cm
7cm
h=10.6cm
h=10.1cm
8cm
6.2cm
h=8.1cm
4cm
7cm
h=10.8cm
4cm
10cm
10.3m
6.4cm
104mm
h=12.7m
h=12.2cm

Using Pythagoras' Theorem (harder!)



$a^2+b^2=h^2$

$6^2+b^2=10^2$

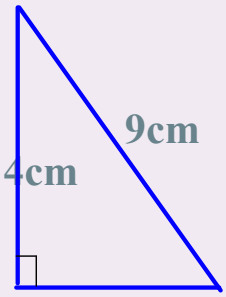
$36+b^2=100$

$b^2=100-36$

$b^2=64$

$b=8cm$

9 B7

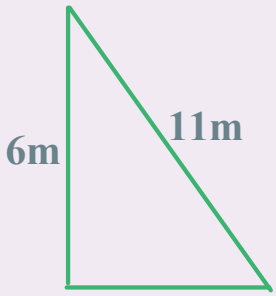


$a^2+b^2=h^2$

$16+b^2=81$

$b^2=65$

$b=8.1cm$



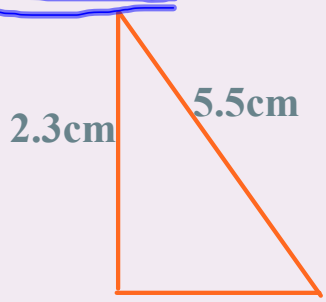
$a^2+b^2=h^2$

$36+b^2=121$

$b^2=121-36$

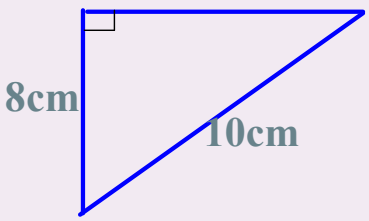
$b=\sqrt{85}$

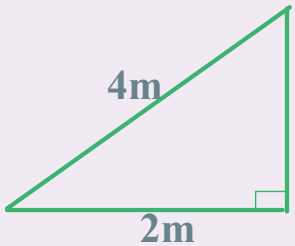
$b=9.2m$

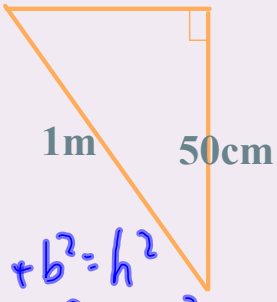


$h^2=24.96$

$h=5.0cm$







$a^2+b^2=h^2$

$100^2+b^2=50^2$

$b^2=7500$

$b=86.6cm$

Solving Problems using Pythagoras' Theorem

1. Draw a diagram
2. Label the hypotenuse h
3. Write out the formula
4. Substitute in carefully
5. Find the length of the unknown side
6. Answer the question!

The width of your exercise book is....cm
The length of your exercise book is....

Find (not by measuring!) the length of the diagonal.

$a^2 + b^2 = h^2$

$17.5^2 + 22.5^2 = h^2$

$812.5 = h^2$

$28.5_{cm} = h$

Do the same for your table.

P7 B7 a, e, f

P9 C5 a, e, f

Hwk for Tuesday

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Attachments

pythag squares on sides.gsp

trig labelling triangles.doc

pythag worksheet.doc