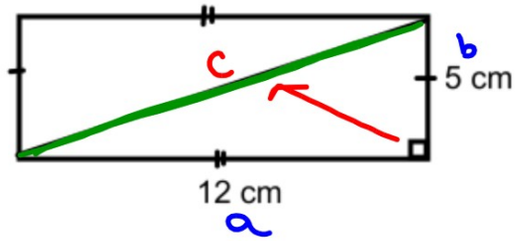
Fom Last Day

Find the length of the diagonal of the rectangle.



ADD TO YOUR NOTES

Given
a = 12 cm
b = 5 cm
c = ?

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

$c^2 = (12cm)^2 + (5cm)^2$

$c^2 = 144cm^2 + 25cm^2$

$c^2 = 169cm^2$

$\sqrt{c^2} = \sqrt{169cm^2}$

$c = 13cm$

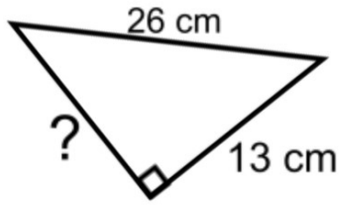
Warm Up Grade 8

Name:_____

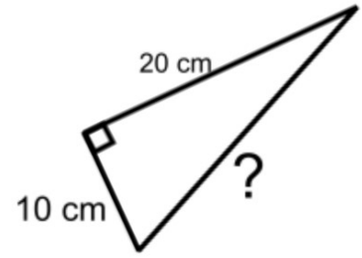
Find the length of the missing side (Use calculators but show your work)

You can use your notes

a)



b)



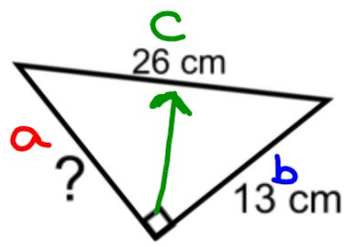
Warm Up Grade 8

Name: Apr 17

Find the length of the missing side (Use calculators but show your work)

You can use your notes

a)



Given

$a = ?$

$b = 13\text{cm}$

$c = 26\text{cm}$

$a^2 = c^2 - b^2$

$a^2 = (26\text{cm})^2 - (13\text{cm})^2$

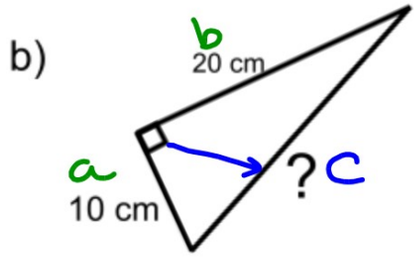
$a^2 = 676\text{cm}^2 - 169\text{cm}^2$

$a^2 = 507\text{cm}^2$

$\sqrt{a^2} = \sqrt{507\text{cm}^2}$

$a \approx 22.5\text{cm}$

b)



Given

$a = 10\text{cm}$

$b = 20\text{cm}$

$c = ?$

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

$c^2 = (10\text{cm})^2 + (20\text{cm})^2$

$c^2 = 100\text{cm}^2 + 400\text{cm}^2$

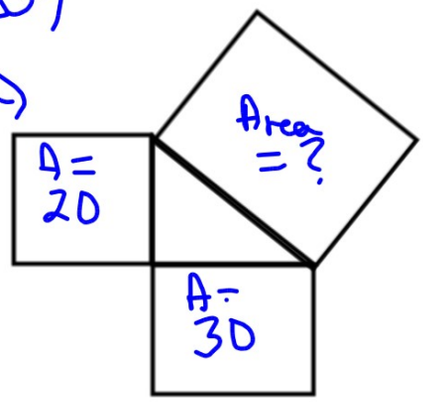
$c^2 = 500\text{cm}^2$

$\sqrt{c^2} = \sqrt{500\text{cm}^2}$

$c \approx 22.36\text{cm}$

Pg 34

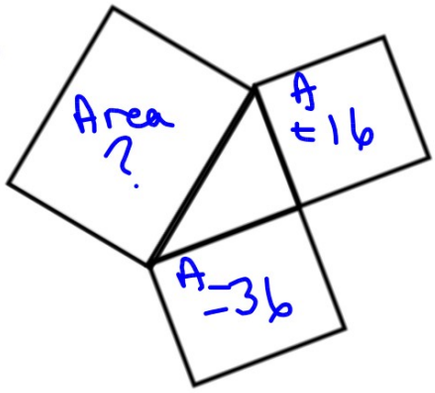
3a)



Missing Area
$20 + 30 = 50$

$A = 50$
Side Length $= \sqrt{50}$

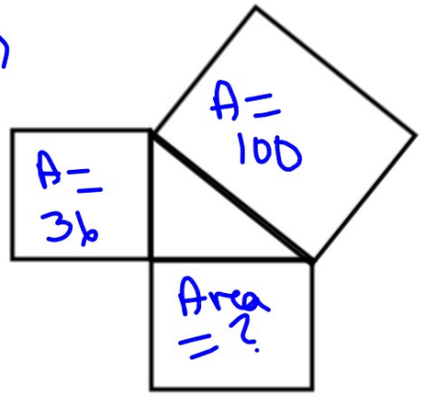
b)



Missing Area
$16 + 36 = 52$

$A = 52$
Side Length $= \sqrt{52}$

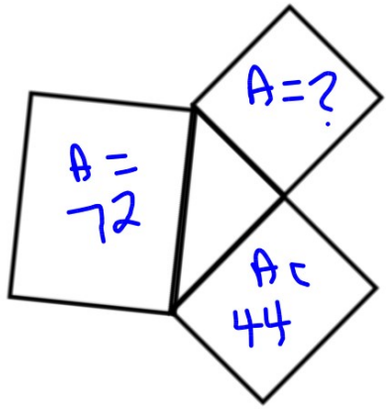
4a)



Missing Area
$100 - 36$
64

$A = 64$
Side Length $= \sqrt{64}$
$= 8$

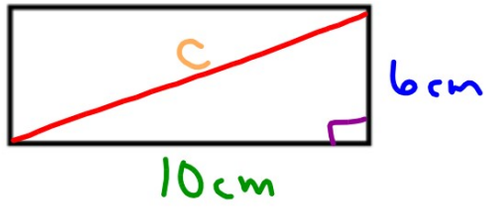
b)



Missing Area
$72 - 44 = 28$

$A = 28$
Side Length $\sqrt{28}$

A rectangular pencil case has dimensions 10 cm by 6 cm. What is the longest pencil that can fit in the pencil case?



Given
$a = 10cm$
$b = 6cm$
$c = ?$

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

$c^2 = (10cm)^2 + (6cm)^2$

$c^2 = 100cm^2 + 36cm^2$

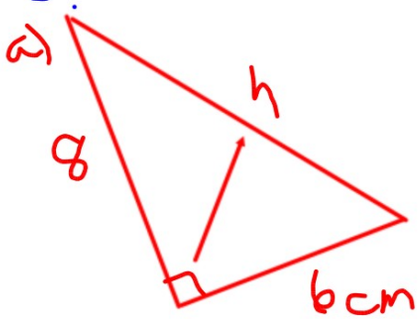
$c^2 = 136cm^2$

$\sqrt{c^2} = \sqrt{136cm}$

$c \approx 11.66cm$

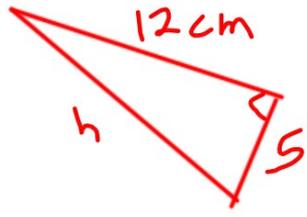
5.

a)



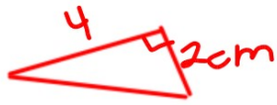
$c^2 = a^2 + b^2$
$c^2 = 8^2 + 6^2$
$c^2 = 64 + 36$
$c^2 = 100$
$\sqrt{c^2} = \sqrt{100}$
$c = 10\text{cm}$

b)



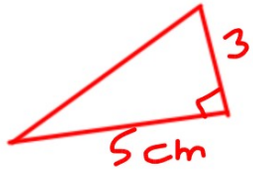
$c^2 = a^2 + b^2$
$c^2 = 12^2 + 5^2$
$c^2 = 144 + 25$
$c^2 = 169$
$\sqrt{c^2} = \sqrt{169}$
$c = 13\text{cm}$

c)



$c^2 = a^2 + b^2$
$c^2 = 4^2 + 2^2$
$c^2 = 16 + 4$
$c^2 = 20$
$\sqrt{c^2} = \sqrt{20}$
$c = 4.5\text{cm}$

d)



$c^2 = a^2 + b^2$
$c^2 = 5^2 + 3^2$
$c^2 = 25 + 9$
$c^2 = 34$
$\sqrt{c^2} = \sqrt{34}$
$c = 5.8\text{cm}$

Class/Homework

Given $a^2 =$ $b^2 =$ $c^2 =$

$c^2 = a^2 +$

$a^2 = c$ b

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3a, 4a, 5(a,b), 6(c,d) ,7(a,b), 8(a,b), 9(a), 10, 12, 13(a,b)

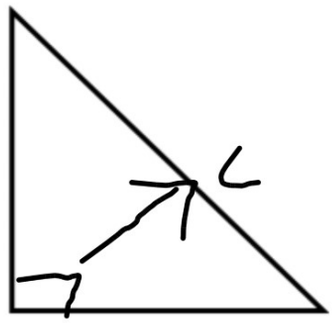
REMEMBER

$(\sqrt{20})^2 = 20$

$\sqrt{20} \times \sqrt{20}$

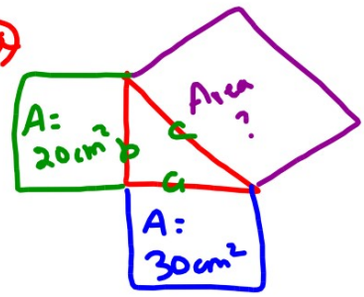
$\sqrt{20 \times 20}$

20



Make sure to check if you are finding c or a

3a)



· Given

$a^2 = 20cm^2$

$b^2 = 30cm^2$

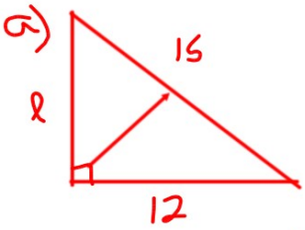
$c^2 =$

$C^2 = a^2 + b^2$

$C^2 = 20cm^2 + 30cm^2$

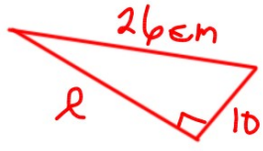
$C^2 = 50cm^2$

6. a)



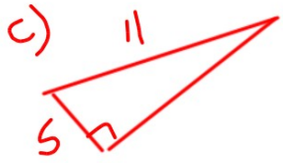
$c^2 = a^2 + b^2$
$15^2 = a^2 + 12^2$
$225 = a^2 + 144$
$225 - 144 = a^2 + 144 - 144$
$81 = a^2$
$\sqrt{81} = \sqrt{a^2}$
$9 = a$

b)



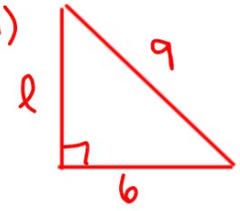
$c^2 = a^2 + b^2$
$26^2 = a^2 + 10^2$
$676 = a^2 + 100$
$676 - 100 = a^2 + 100 - 100$
$576 = a^2$
$\sqrt{576} = \sqrt{a^2}$
$24 = a$

c)



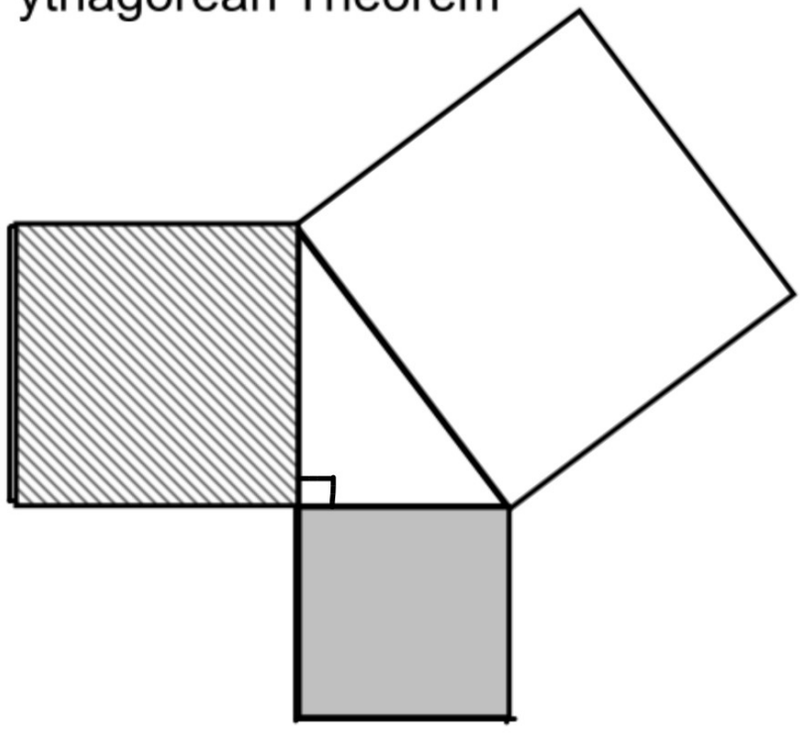
$c^2 = a^2 + b^2$
$11^2 = a^2 + 5^2$
$121 = a^2 + 25$
$121 - 25 = a^2 + 25 - 25$
$96 = a^2$
$\sqrt{96} = \sqrt{a^2}$
$9.8 = a$

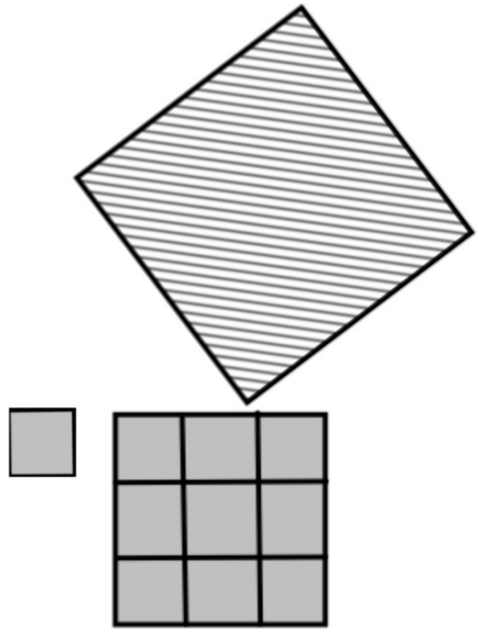
d)



$c^2 = a^2 + b^2$
$9^2 = a^2 + 6^2$
$81 = a^2 + 36$
$81 - 36 = a^2 + 36 - 36$
$45 = a^2$
$\sqrt{45} = \sqrt{a^2}$
$6.7 = a$

Pythagorean Theorem





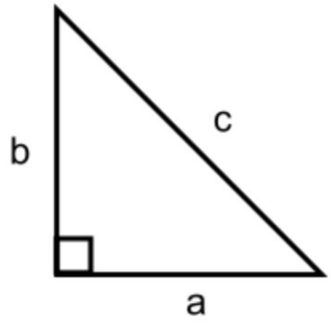
Pythagorean Theorem

- Right Angle Triangle has one angle that 90°

- the side directly across to the right angle is always the longest side, it is the **hypotenuse.**

We use "c" for the hypotenuse

- Legs are side "a" and "b"



Pythagorean Theorem Equation:

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

area of the square off the hypotenuse

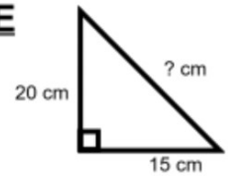
$$(c)^2 - (b)^2 = (a)^2$$

area of the square off the leg

Pythagorean Theorem Equation:

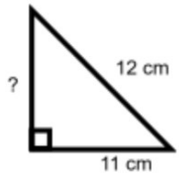
Then to find the length of the **HYPOTENUSE**

$$c = \sqrt{(a)^2 + (b)^2}$$



Then to find the length of a **LEG**

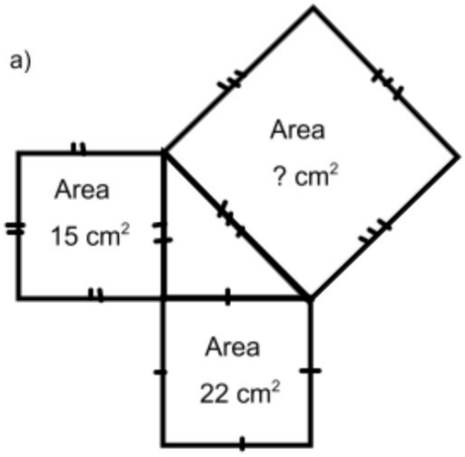
$$a = \sqrt{(c)^2 - (b)^2}$$



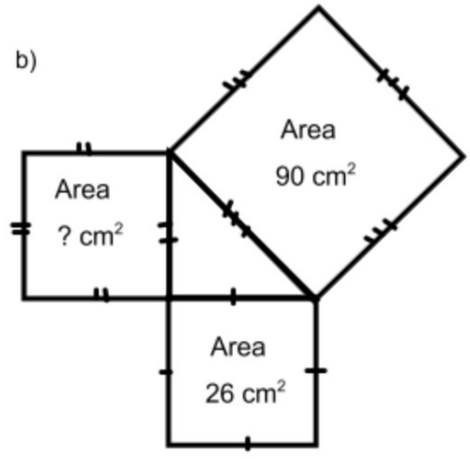
Example)

Find the area of the indicated square:

a)

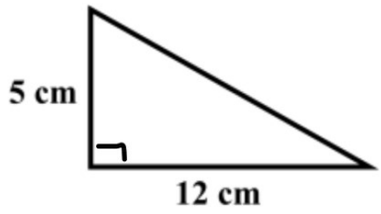


b)

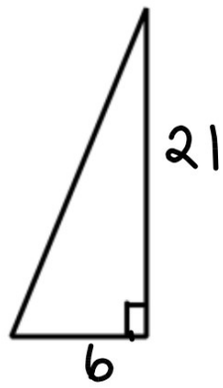


Examples:

2a)

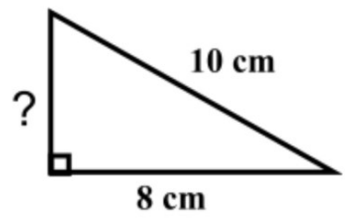


2b)

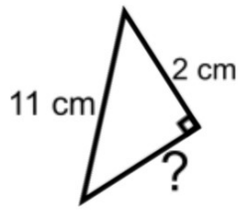


Examples:

3a)



3b)



Class/Homework

Page 34:

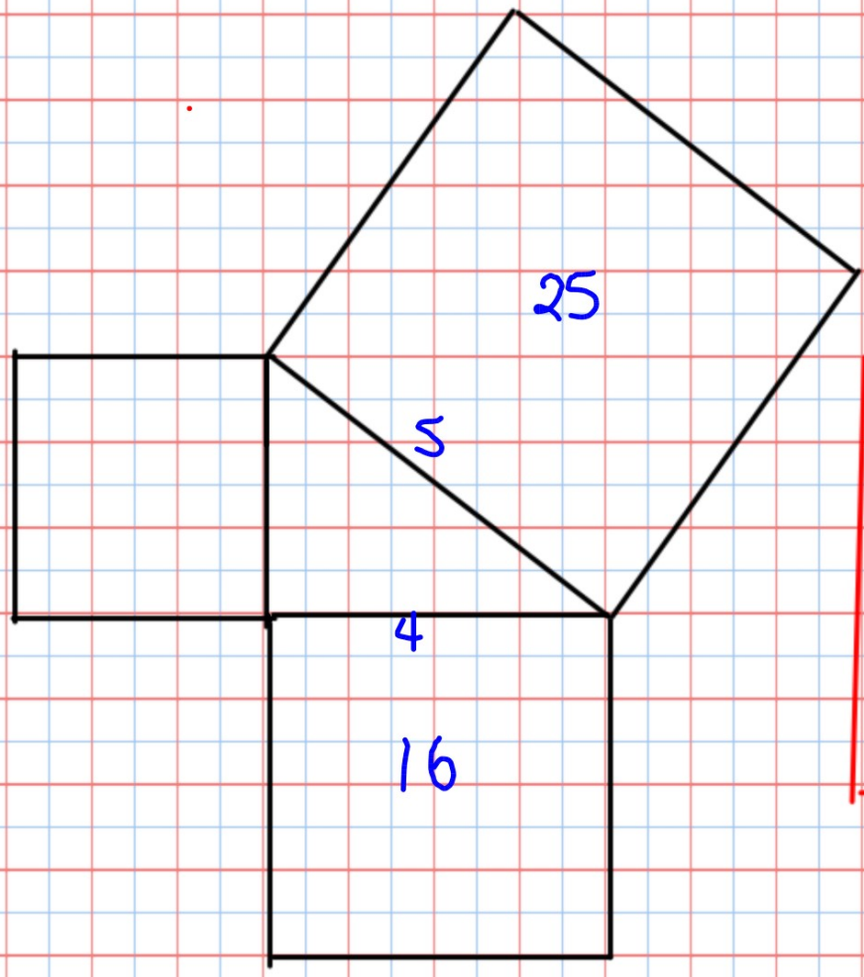
#3(a,b)

#4(a,b)

#5(a,c)

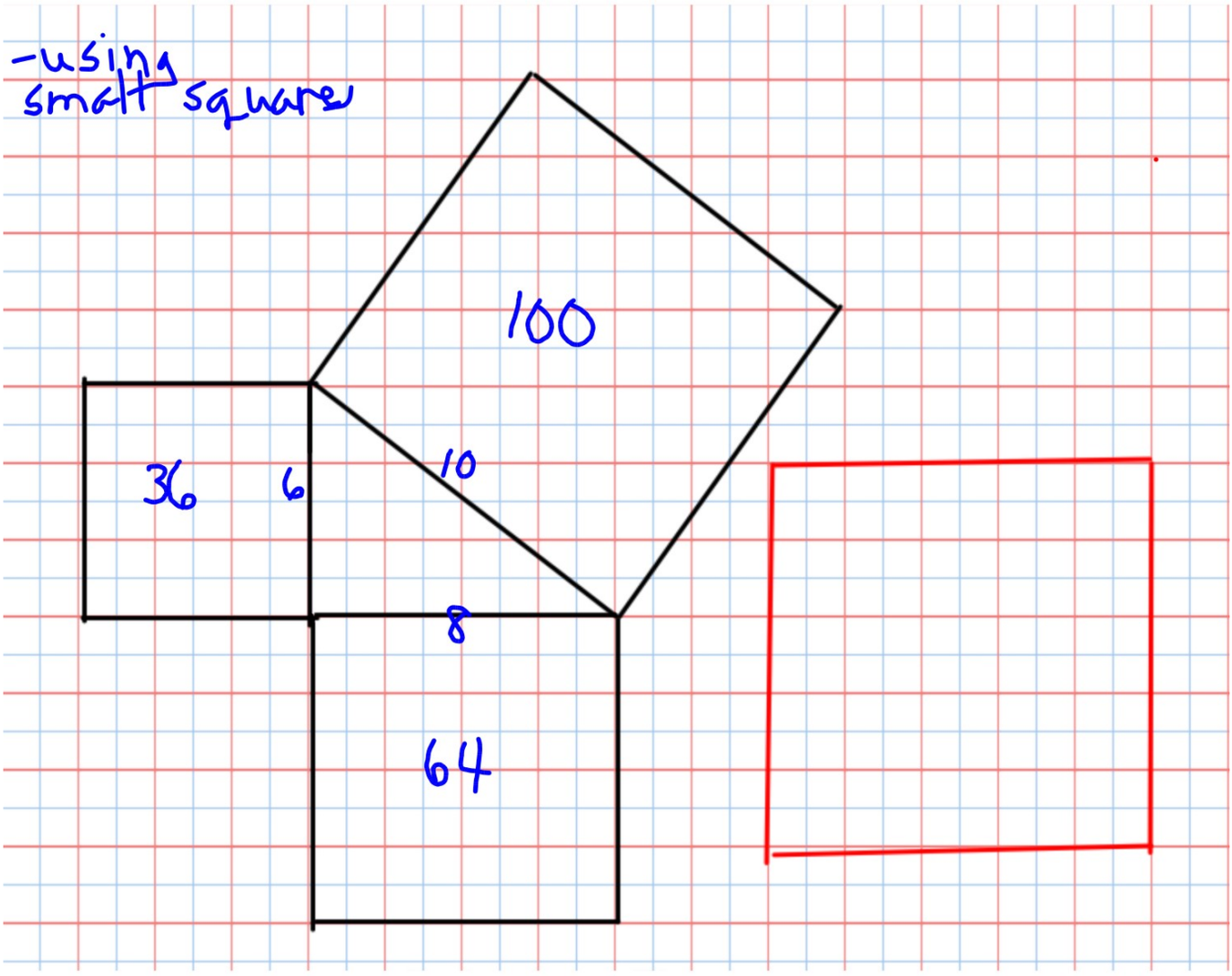
#6(a,c)

#7(a,b)



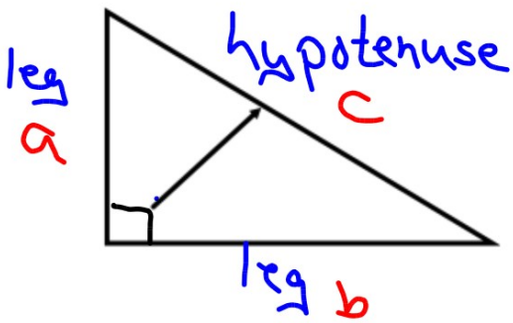
Pythagorean Theorem

The Pythagorean Theorem is used with right triangles only. It gives you a way of finding the length of the third side if you know the other 2 sides of the triangle.


-using small squares
100
36
6
10
8
64

Pythagorean Theorem

If you have a right angle triangle, you can square the lengths of the legs of the triangle, then add these 2 values and you will get the square of the hypotenuse.
The hypotenuse is the longest side of a right angle triangle, directly across from the right angle.



Pythagorean Theorem

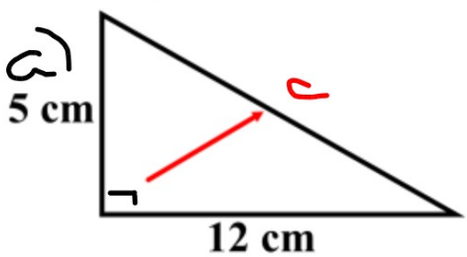
$a^2 + b^2 = c^2$

or

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

Examples:

a)



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

$c^2 = 5^2 + 12^2$

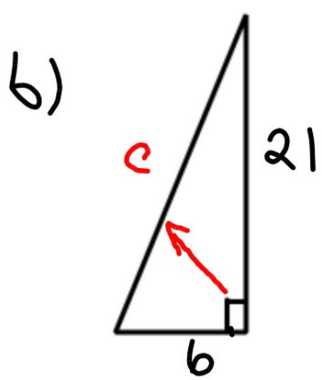
$c^2 = 25 + 144$

$c^2 = 169$

$\sqrt{c^2} = \sqrt{169}$

$c = 13$

b)



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

$c^2 = 6^2 + 21^2$

$c^2 = 36 + 441$

$c^2 = 477$

$\sqrt{c^2} = \sqrt{477}$

$c = 21.84$

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#3-6