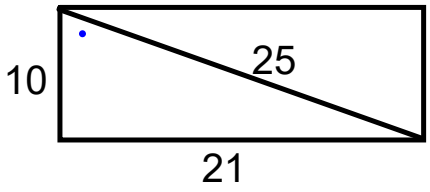
Warm Up Grade 8

Nov. 28, 2019



Is the quadrilateral a rectangle?

↓ have 90° corners

Check

c^2 | $a^2 + b^2$

$(25)^2$ | $10^2 + 21^2$

625 | $100 + 441$

dif 541

Not a Right Δ

Since No Right Δ then not Rectangle.

Homework Solutions pg. 43 # 9,10,12(a,c), 14

9. 6, 7, $\sqrt{13}$

c

$7^2 = 6^2 + (\sqrt{13})^2$?

$49 \quad 36 + 13$

same 49

Yes it is a right triangle.

It is not a pythagorean triple because one side is not a whole number

$\sqrt{13}$ $\sqrt{9}$ 3 $\sqrt{16}$ 4

Homework Solutions pg. 43 # 9,10,12(a,c), 14

10. If the number are pythag. triples, it will form a right Δ.

3, 5, 7 7^2 3^2+5^2

49 $9+25$

34

It will not form a right triangle.

11

Pythagorean Triples	Legs	Hypotenuse
3,4,5	3, 4	5
6,8,10 ~~9,12,15~~	6, 8	10
12, 16,20	12, 16	20
15, 20,25 ~~16,24,30~~	15, 20	25
21, 28, 35	21, 28	35

b) Take the original triple, and multiply each by the same number

c) Triple 5, 12, 13

More Triples 10, 24, 26

15, 36, 39

20, 48, 52

25, 60, 65

65^2 25^2+60^2

$625+3600$

4225 4225

Homework Solutions pg. 43 # 9,10,12(a,c), 14

12 a) 14, 48, ___

$14^2 + 48^2$

$196 + 2304$

2500 missing $\sqrt{2500}$

50

b) 24, 32, ___

$24^2 + 32^2$

$576 + 1024$

1600 missing $\sqrt{1600}$

40

c) 12, 37 ___

$12^2 + 37^2$

$144 + 1369$

1513 missing term $\sqrt{1513}$

not a triple 38.9

$37^2 - 12^2$

$1369 - 144$

1225 $\sqrt{1225} = 35$

14. 73, 55, 48

73^2 $55^2 + 48^2$

5329 $3025 + 2304$

5329

Yes it is a rectangle

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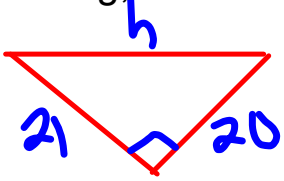
Homework Solutions

2) Must label the longest side (opposite to 90°), the hypotenuse , c. The other two sides does not matter which is a or b.

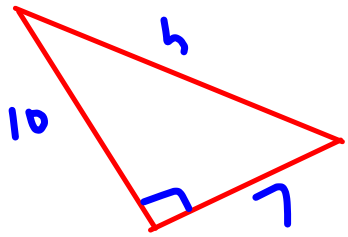
3) When given legs and asked to find longest side, c then add. When given c and a leg, then subtract

4a)



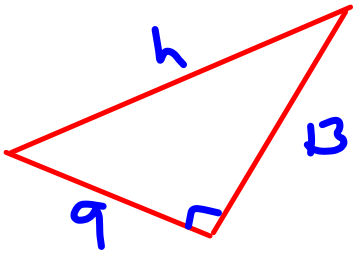
$c^2 = a^2 + b^2$
$c^2 = 20^2 + 21^2$
$c^2 = 400 + 44$
$c^2 = 841$
$\sqrt{c^2} = \sqrt{841}$
$c = 29$

b)



$c^2 = a^2 + b^2$
$c^2 = 10^2 + 7^2$
$c^2 = 100 + 49$
$c^2 = 149$
$\sqrt{c^2} = \sqrt{149}$
$c = 12.2$

c)



$c^2 = a^2 + b^2$
$c^2 = 9^2 + 13^2$
$c^2 = 81 + 169$
$c^2 = 250$
$\sqrt{c^2} = \sqrt{250}$
$c = 15.8$

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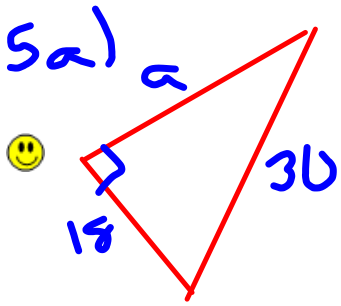
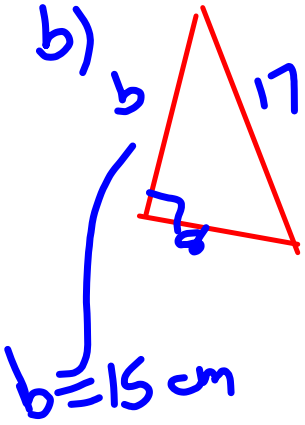
Homework Solutions

5a)



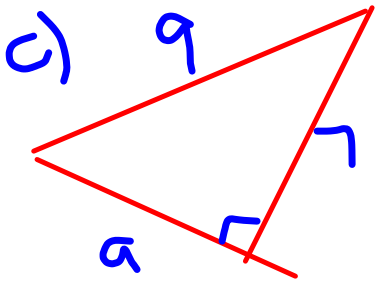
$c^2 = a^2 + b^2$
$30^2 = a^2 + 18^2$
$900 = a^2 + 324$
$900 - 324 = a^2 + 324 - 324$
$576 = a^2$
$\sqrt{576} = \sqrt{a^2}$
$24 = a$

b)



$c^2 = a^2 + b^2$
$17^2 = a^2 + 8^2$
$289 = a^2 + 64$
$289 - 64 = a^2 + 64 - 64$
$225 = a^2$
$\sqrt{225} = \sqrt{a^2}$
$15 = a$

c)



$c^2 = a^2 + b^2$
$9^2 = a^2 + 7^2$
$81 = a^2 + 49$
$81 - 49 = a^2 + 49 - 49$
$32 = a^2$
$\sqrt{32} = \sqrt{a^2}$
$5.7 \approx a$

Applying the Pythagorean Theorem

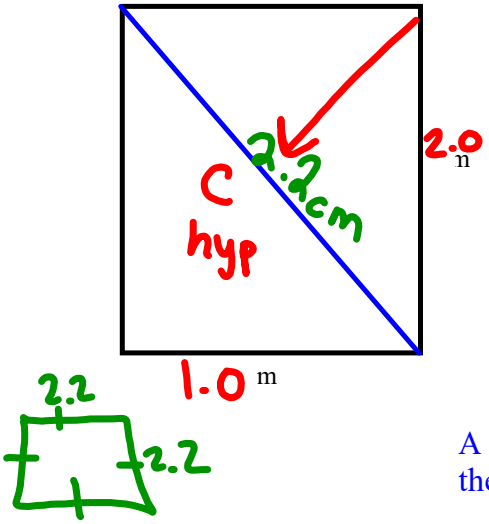
Now that we know how to use the Pythagorean Theorem, we will apply it to "real life" situations.

A doorway is 2.0 m high and 1.0 m wide. A square piece of plywood has side length 2.2 m. Can the plywood fit through the door?

Always start with a diagram and fill in what you know.

Ask yourself, What shape is the doorway? What is the longest part of the doorway?

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

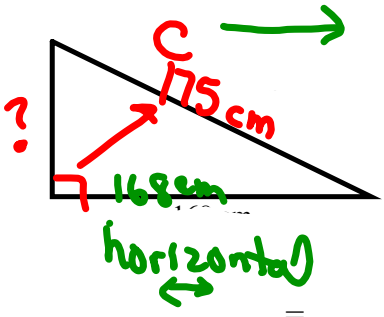


The longest part is the _____
To find the length of the _____
use Pythagorean Theorem.

$c^2 = a^2 + b^2$
$c^2 = 2^2 + 1^2$
$c^2 = 4 + 1$
$c^2 = 5$
$\sqrt{c^2} = \sqrt{5}$
$c = \sqrt{5}$ or 2.2 m

A piece of plywood 2.2 m long could fit through the door.

2) A ramp is used to load a snow machine onto a trailer. The ramp as a horizontal length of 168 cm and sloping length of 175 cm. The side view is a right triangle. How high is the ramp?
Remember start by drawing a diagram and filling in what you know.



$a^2 = c^2 - b^2$
$= (175)^2 - (168)^2$
$= 30625 - 28224$
$a^2 = 2401$
$\sqrt{a^2} = \sqrt{2401}$
$a = 49$ cm

The ramp is 49 cm high.

Marina helped her dad build a small rectangular table for her bedroom. The tabletop has a length of 56 cm and a width of 33 cm. The diagonal of the tabletop measures 60 cm. Does the tabletop have square corners? How do you know?

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

$(60)^2$ $56^2 + 33^2$

3600 $3136 + 1089$

4225

Not Right Δ

So table is not a Rectangle

Class/Homework

Test Dec. 3

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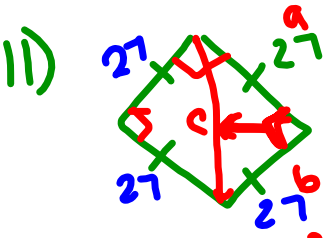
#6, #7, #8(b), #9, #10,#11, #13, #16

→ Tomorrow's warm-up is very similar to the test.

11)



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

$27^2 + 27^2$