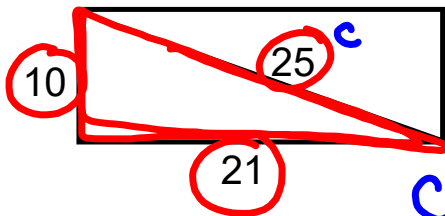




Warm Up Grade 8

Nov. 27, 2018



Is the quadrilateral a rectangle?

Copy this down

$$\begin{array}{l} c^2 \\ 25^2 \\ 625 \end{array} \left. \vphantom{\begin{array}{l} c^2 \\ 25^2 \\ 625 \end{array}} \right\} \begin{array}{l} a^2 + b^2 \\ 10^2 + 21^2 \\ 100 + 441 \\ \hline 541 \end{array}$$

Not Same
Not Right Δ
So
Not a Rectangle

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

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

$\begin{matrix} 36 \\ 6^2 \end{matrix}$
 $\begin{matrix} 49 \\ 7^2 \end{matrix}$
 $\begin{matrix} 13 \\ \sqrt{13} \end{matrix}$

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

$$49 = 36 + 13$$

$$49 = 49$$

$$\frac{\sqrt{9}}{3} \quad \frac{\sqrt{13}}{4}$$

Yes it is a right triangle.

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

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

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

$$3, 5, 7 \qquad 7^2 \qquad 3^2 + 5^2$$

$$\qquad 49 \qquad 9 + 25$$

$$\qquad \qquad \qquad 34$$

It will not form a right triangle.

11

Pythagorean Triples	Legs	Hypotenuse	
3,4,5	3, 4	5	
6,8,10	6, 8	10	
7,24,25 12, 16, 20	12, 16	20	
15, 20, 25	15, 20	25	
16, 48, 50 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

$$65^2 \qquad 25^2 + 60^2$$

$$4225 \qquad 625 + 3600$$

$$\qquad \qquad \qquad 4225$$

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

$$12 a) 14, 48, \underline{\quad}$$



$$14^2 + 48^2$$

$$196 + 2304$$

$$2500$$

missing $\sqrt{2500}$
50

$$b) 24, 32, \underline{\quad}$$

$$24^2 + 32^2$$

$$576 + 1024$$

$$1600$$

missing $\sqrt{1600}$
40

$$c) 12, 37, \underline{\quad}$$

$$12^2 + 37^2$$

$$144 + 1369$$

$$1513$$

missing term $\sqrt{1513}$
38.9

not a triple

$$37^2 - 12^2$$

$$1369 - 144$$

$$1225$$

$$\sqrt{1225} = \boxed{35}$$

$$14. 73, 55, 48$$

$$73^2 \quad 55^2 + 48^2$$

$$5329 \quad 3025 + 2304$$

$$5329$$

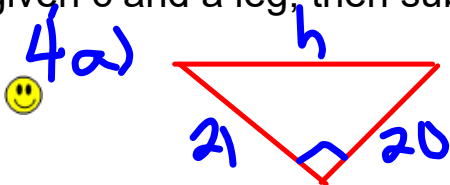
Yes it is a rectangle

Page 48-49 #2, #3, #4a, #5a
Homework Solutions

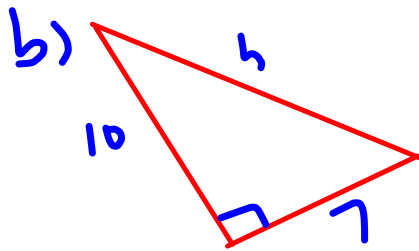
2) Must label the longest side (opposite to 90°), the hypotenuse, c .

The other two sides does not matter which is a or b .

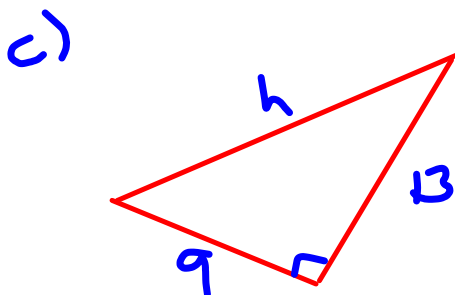
3) When given legs and asked to find longest side, c then add. When given c and a leg, then subtract



$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 20^2 + 21^2 \\c^2 &= 400 + 441 \\c^2 &= 841 \\\sqrt{c^2} &= \sqrt{841} \\c &= 29\end{aligned}$$

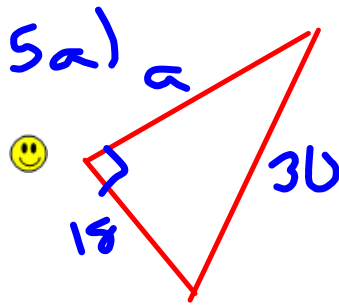


$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 10^2 + 7^2 \\c^2 &= 100 + 49 \\c^2 &= 149 \\\sqrt{c^2} &= \sqrt{149} \\c &= 12.2\end{aligned}$$

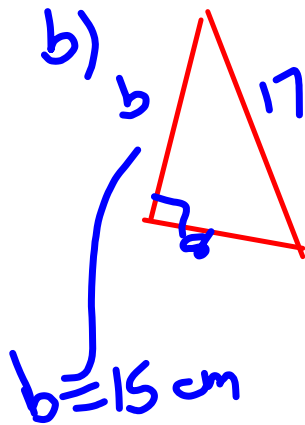


$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 9^2 + 13^2 \\c^2 &= 81 + 169 \\c^2 &= 250 \\\sqrt{c^2} &= \sqrt{250} \\c &= 15.8\end{aligned}$$

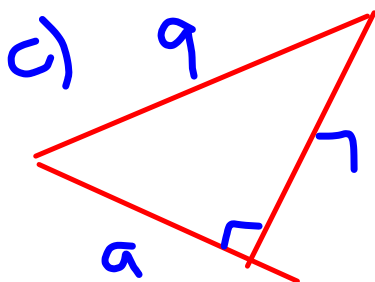
Page 48-49 #2, #3, #4a, #5a
Homework Solutions



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



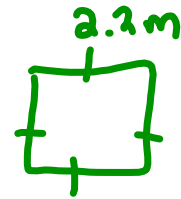
$$\begin{aligned}
 c^2 &= a^2 + b^2 \\
 17^2 &= a^2 + 8^2 \\
 289 &= a^2 + 64 \\
 289 - 64 &= a^2 + 64 - 64 \\
 225 &= a^2 \\
 \sqrt{225} &= \sqrt{a^2} \\
 15 &= a
 \end{aligned}$$



$$\begin{aligned}
 c^2 &= a^2 + b^2 \\
 9^2 &= a^2 + 7^2 \\
 81 &= a^2 + 49 \\
 81 - 49 &= a^2 + 49 - 49 \\
 32 &= a^2 \\
 \sqrt{32} &= \sqrt{a^2} \\
 5.7 &= a
 \end{aligned}$$

Applying the Pythagorean Theorem

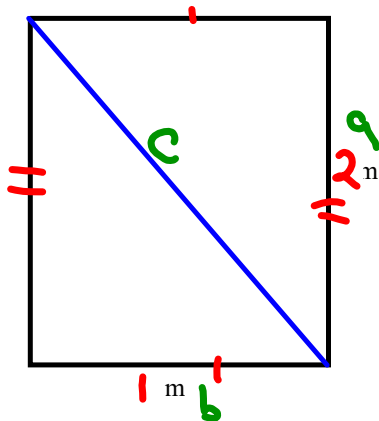
Now that we know how to use the Pythagorean Theorem, we will apply it to "real life" situations.



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?



The longest part is the diagonal / hypotenuse
To find the length of the diagonal use Pythagorean Theorem.

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

$$c^2 = 2^2 + 1^2$$

$$c^2 = 4 + 1$$

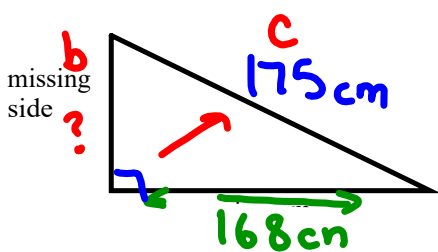
$$c^2 = 5$$

$$\sqrt{c^2} = \sqrt{5}$$

$$c = \sqrt{5} \text{ or } 2.2 \text{ m}$$

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 has 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.



= 49 cm tall

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

$$b^2 = (175)^2 - (168)^2$$

$$b^2 = 30625 - 28224$$

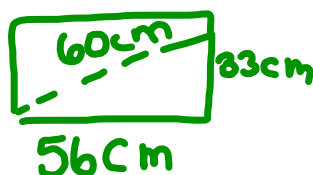
$$b^2 = 2401$$

$$b = \sqrt{2401}$$

$$b = 49$$

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?



$$\begin{array}{l} c^2 \\ 60^2 \\ 3600 \end{array} \left. \vphantom{\begin{array}{l} c^2 \\ 60^2 \\ 3600 \end{array}} \right\} \begin{array}{l} a^2 + b^2 \\ 56^2 + 33^2 \\ 3136 + 1089 \\ 4225 \end{array}$$

Not same
So Not a Rectangle





Page 49-50

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