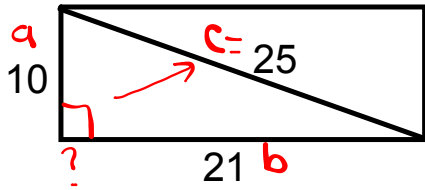




Warm Up Grade 8

Jan. 18, 2016



Is the quadrilateral a rectangle?

$$x^2 = 25x^2$$

$$25^2 = 25 \wedge 2 \text{ enter}$$

Check left
 $c^2 = a^2 + b^2$
 $25^2 = (10)^2 + (21)^2$
 $625 = 100 + 441$
 difference 541
 So not a right Δ

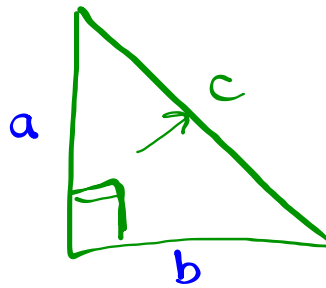
b a c
 4, 5, 8
 $c^2 \} a^2 + b^2$

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

hyp
(longest)
side

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

side
smaller
side



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

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

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

$$49 = 36 + 13$$

$$49 = 49$$

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

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 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

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

$$4225 \qquad 625 + 3600$$

$$\qquad \qquad 4225$$

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 $\sqrt{1513}$
38.9
not a triple

$$37^2 - 12^2$$

$$1369 - 144$$

$$1225$$

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

☺ 14. 73, 55, 48

$$73^2$$

$$5329$$

$$55^2 + 48^2$$

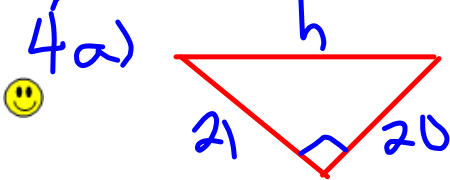
$$3025 + 2304$$

$$5329$$

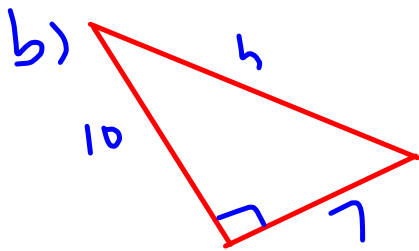
Yes it is a rectangle

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

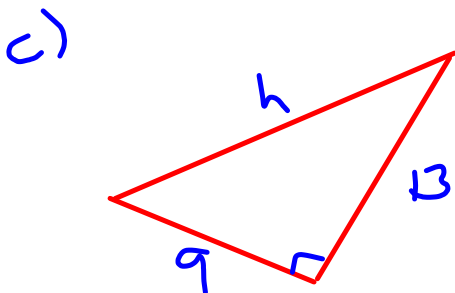
pg 49



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

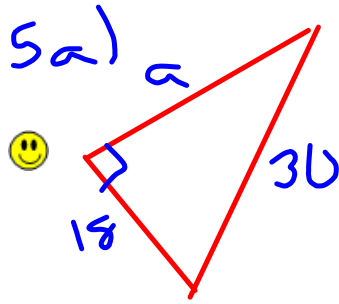


$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 10^2 + 7^2 \\c^2 &= 100 + 49 \\c^2 &= 149 \\\sqrt{c^2} &= \sqrt{149} \\c &= 12.2\end{aligned}$$

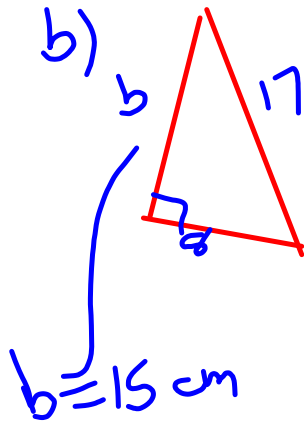


$$\begin{aligned}c^2 &= a^2 + b^2 \\c^2 &= 9^2 + 13^2 \\c^2 &= 81 + 169 \\c^2 &= 250 \\\sqrt{c^2} &= \sqrt{250} \\c &= 15.8\end{aligned}$$

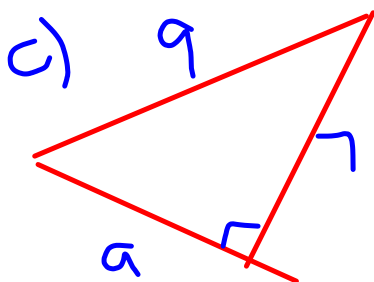
Page 48-49 #2, #3, #4a, #5a
Homework Solutions



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



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



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

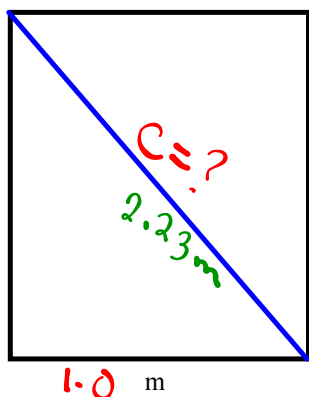
Applying the Pythagorean Theorem

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 (hyp). To find the length of the hyp use Pythagorean Theorem.

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

$$(1.0)^2 + (2.0)^2$$

$$= 1m^2 + 4.0m^2$$

$$c^2 = 5m^2$$

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

A piece of plywood ___m long could fit through the door.

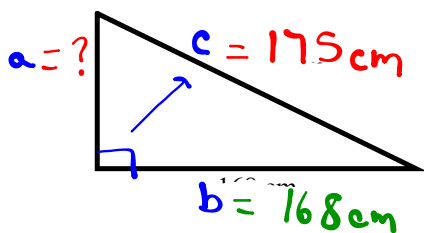
$$c = 2.23m$$

Plywood of 2.2m will fit diagonally thru door that is 2.2

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.



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

$$a^2 = (175cm)^2 - (168cm)^2$$

$$a^2 = 30625cm^2 - 28224cm^2$$

$$a^2 = 2401cm^2$$

$$\sqrt{a^2} = \sqrt{2401cm^2}$$

$$a = 49cm$$

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?



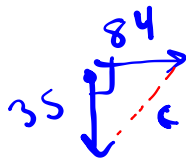


Class/Homework



N
E
S
W

Page 49-50



#6, #7, #8(b), #9, #10, #11, #13, #15(draw on grid paper), #16

$$c^2 = a^2 + b^2 \quad \text{or} \quad a^2 = c^2 - b^2$$

Thursday, Jan. 21, 2016