

Pythagoras: which step breaks?

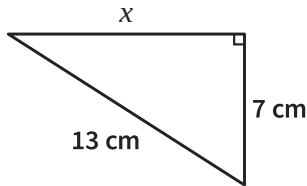
ANSWERS

Name _____

These follow one question, finding x to 1 decimal place in a triangle with hypotenuse 13 cm and one side 7 cm, through its steps in order: trig or Pythagoras, which side is the hypotenuse, square the two sides you know, add or subtract, square root, round, then does it make sense.

- 1 Find x to 1 decimal place. Trig or Pythagoras?
You do not need to work it out.

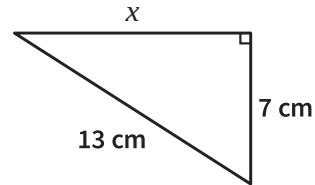
STEP 1: TRIG OR PYTHAGORAS? • FIX IT CARD 1



Pythagoras

- 2 It is Pythagoras. Which side is the hypotenuse?

STEP 2: WHICH SIDE IS THE HYPOTENUSE? • FIX IT CARD 2



13 cm: x is a shorter side

- 3 The hypotenuse is 13 cm and x is a shorter side.
Square the two sides you know, 13 cm and 7 cm.

STEP 3: SQUARE THE TWO SIDES YOU KNOW • FIX IT CARD 3

169 and 49

- 4 x is a shorter side. $13^2 = 169$ and $7^2 = 49$. Find x^2 .

STEP 4: ADD OR SUBTRACT: SUBTRACT, FOR A SHORTER SIDE • FIX IT CARD 4

$x^2 =$ $169 - 49 = 120$

- 5 $x^2 = 120$. Find x . Do not round yet.

STEP 5: SQUARE ROOT • FIX IT CARD 5

$x =$ 10.954...

- 6 $x = 10.954...$ cm. Give x to 1 decimal place.

STEP 6: ROUND AS ASKED • FIX IT CARD 6

$x =$ 11.0 cm

- 7 Kim works out $x = 14.8$ cm for this triangle.
Does it make sense? Give a reason.

STEP 7: DOES IT MAKE SENSE? • FIX IT CARD 7

No: x must be under 13 cm

The first question wrong is the step that breaks. Give that student the card it names.

The Maths Habit