# Pythagoras: flowchart

Planner week 3 · Add or subtract? Follow the arrows to find out

**Find a missing side in a triangle**

**Is there an angle in the question?**
(not the right angle)

Yes → **Use trigonometry**
SOH CAH TOA

No

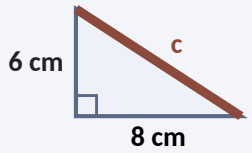
**Are you finding the longest side?**
the hypotenuse, opposite the right angle

Yes

No

## Longest side: ADD

*Find the hypotenuse c.*

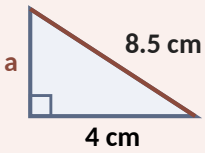



1. **Square** both sides: $6^2 = 36$ and $8^2 = 64$
2. **Add**: 36 + 64 = 100
3. **Square root**: √100 = **10 cm**

✓ Check: the answer is the **biggest** side

## Shorter side: SUBTRACT

*Find the shorter side a.*




1. **Square** both sides: $8.5^2 = 72.25$ and $4^2 = 16$
2. **Subtract** (big − small): 72.25 − 16 = 56.25
3. **Square root**: √56.25 = **7.5 cm**

✓ Check: the answer is **smaller** than 8.5

**Is the answer a long decimal?**

No → **Write the units**

Yes

**Write the full answer, then round**
√261 = 16.155... = **16.2 cm** (1 d.p.)

## The big question

Am I finding the **longest side**?

**Longest**: square, **add**, square root.
**Shorter**: square, **subtract**, square root.

## Is it right-angled?

Sides 5, 12 and 13
$5^2 + 12^2 = 25 + 144 = 169$
$13^2 = 169$
Equal → **right-angled** ✓

**Between two points:** draw the triangle under the line and count the squares across and up.

## Watch out

- The hypotenuse is opposite the little square.
- Don't forget to **square root** at the end.
- Squaring is not doubling: $8^2 = 64$, not 16.
- Sense check: the hypotenuse is always the longest side.