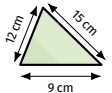
Answers — square check: does the sum of the two smaller squares equal the square of the longest side? For a known right angle, find the missing side.

1. Show the square check: right-angled?



Solution

$9^2 + 12^2 = 81 + 144 = 225$

$15^2 = 225$, equal.

Yes.

2. Check whether side lengths $10, 24, 26$ make a right-angled triangle.

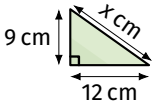
Solution

$10^2 + 24^2 = 100 + 576 = 676$

$26^2 = 676$, equal.

Yes.

3. Right-angled. Find x.



Solution

Legs $12, 9$; hypotenuse x.

$x^2 = 12^2 + 9^2 = 144 + 81 = 225$

$x = 15$.

4. Which side must be the hypotenuse for $7, 24, 25$? Then decide if the triangle is right-angled.

Solution

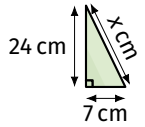
Hypotenuse $= 25$ (longest).

$7^2 + 24^2 = 49 + 576 = 625 = 25^2$.

Yes.

Answers — square check: does the sum of the two smaller squares equal the square of the longest side? For a known right angle, find the missing side.

5. Right-angled. Find *x*.



Solution

Legs $7, 24$; hypotenuse x.

$x^2 = 7^2 + 24^2 =$

$49 + 576 = 625$

$x = 25$.

6. A triangle has side lengths $9, y, 15$. If it is right-angled, find *y*.

Solution

15 is the hypotenuse (longest).

$y^2 = 15^2 - 9^2 = 225 - 81 = 144$

$y = 12$.

7. A triangle has side lengths $12, 35, z$. If it is right-angled, find *z*.

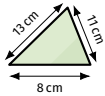
Solution

z is the hypotenuse (longest).

$z^2 = 12^2 + 35^2 = 144 + 1225 = 1369$

$z = 37$.

8. Show the square check: right-angled?



Solution

$8^2 + 11^2 = 64 + 121 = 185$

$13^2 = 169 \neq 185$.

No.

Answers — square check: does the sum of the two smaller squares equal the square of the longest side? For a known right angle, find the missing side.

9. Which side must be the hypotenuse for $20, 21, 29$? Then decide if the triangle is right-angled.

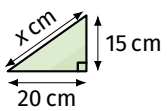
Solution

Hypotenuse $= 29$ (longest).

$20^2 + 21^2 = 400 + 441 = 841 = 29^2$.

Yes.

10. Right-angled. Find x.



Solution

Legs $20, 15$; hypotenuse x.

$x^2 = 20^2 + 15^2 = 400 + 225 = 625$

$x = 25$.

11. A student says $16, 30, 34$ is not right-angled because the numbers are too large. Is the student correct? Show the square check.

Solution

$16^2 + 30^2 = 1156 = 34^2$.

Right-angled — **student is wrong**.

12. Sort into right-angled or not: $(9, 40, 41)$, $(8, 15, 18)$, $(11, 60, 61)$.

Solution

$(9, 40, 41)$: $1681 = 41^2$, right.

$(11, 60, 61)$: $3721 = 61^2$, right.

$(8, 15, 18)$: $289 \neq 324$, not.