

The Pythagorean Theorem: math test, Grade 8 – download the PDF

Suggested time: 45 minutes. Out of 20 points. Calculator allowed only when the problem says so.

1

Missing sides

/ 4 pts

Find the missing side of each right triangle. Give an exact value, and round to the nearest hundredth when it is not a whole number.

- a. Legs 15 cm and 20 cm: find the hypotenuse.
- b. Hypotenuse 37 m and one leg 12 m: find the other leg.
- c. Legs 4 in and 9 in: find the hypotenuse.

2

The converse

/ 3 pts

Decide whether each triangle is a right triangle. Show your work.

- a. Sides 16 cm, 30 cm, 34 cm
- b. Sides 11 cm, 13 cm, 17 cm

3 Points in the plane

/ 4 pts

Let $P(-2, -1)$, $Q(10, 8)$ and $R(10, -1)$.

- Find the distance PQ . (2 pts)
- Explain why triangle PRQ has a right angle at R , and find its perimeter. (2 pts)

4 A ladder and a window

/ 4 pts

A 25 ft ladder reaches a window 24 ft above the ground.

- How far is the foot of the ladder from the wall? (2 pts)
- The foot is pulled out to 15 ft from the wall. How high does the ladder reach now? (2 pts)

5 A storage crate

/ 3 pts

A crate measures 9 in by 12 in by 20 in.

- Find the diagonal of its 9 in by 12 in face. (1 pt)
- Find the length of its space diagonal. (2 pts)

6 True or false?

/ 2 pts

True or false: "A triangle with sides 1.2 cm, 1.6 cm and 2 cm is a right triangle." Justify your answer.



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