



Applying Pythagoras' theory

Mana Maths

Te reo Māori terms



ture a Pythagoras

Pythagoras' theorem

[Open in Te Aka](#)

tapatoru

triangle

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tapawhā

rectangle

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tapatoru hāngai

right-angle triangle

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Applying Pythagoras' theory — Foundation

1. A square has side length 6 cm. Find its diagonal.
2. A square has side length 9 m. Find its diagonal to 1 decimal place.
3. A rectangle is 5 cm by 12 cm. Find its diagonal.
4. A rectangle is 8 m by 15 m. Find its diagonal.
5. A television screen is 24 cm wide and 18 cm high. Find the screen diagonal.
6. A rectangle has diagonal 13 cm and width 5 cm. Find the height.
7. A rectangle has diagonal 17 m and length 15 m. Find the width.
8. An isosceles triangle has equal sides 13 cm and base 10 cm. Find its height.
9. An isosceles triangle has equal sides 10 cm and base 12 cm. Find its height.

- 10.** A ladder reaches 12 m up a wall and is 13 m long. How far is the foot of the ladder from the wall?
- 11.** A triangle has side lengths 3 cm, 4 cm, and 5 cm. Is it right-angled?
- 12.** A triangle has side lengths 5 cm, 12 cm, and 13 cm. Is it right-angled?
- 13.** A triangle has side lengths 6 cm, 8 cm, and 11 cm. Is it right-angled?
- 14.** True or false: if the longest side of a triangle is 10 cm and the other sides are 6 cm and 8 cm, then the triangle is right-angled.

Applying Pythagoras' theory — Proficient

1. A rectangle is 9 cm by 12 cm. Find its diagonal.
2. A park is 18 m by 24 m. Find the diagonal distance across it.
3. A square has area 81 cm^2 . Find its diagonal.
4. A square has diagonal $10\sqrt{2}$ cm. Find its side length.
5. An isosceles triangle has equal sides 17 cm and base 16 cm. Find its height.
6. An isosceles triangle has equal sides 25 cm and base 14 cm. Find its height.
7. A 7.5 m ladder reaches 6 m up a wall. How far is its foot from the wall?
8. A field is 35 m by 12 m. Find the diagonal distance corner to corner.
9. A rectangle has diagonal 26 cm and width 10 cm. Find its length.

10. Sides 8 cm, 15 cm, 17 cm. Is the triangle right-angled? Explain.

11. Sides 7 cm, 9 cm, 11 cm. Is the triangle right-angled? Explain.

12. Sides 10 cm, 24 cm, 26 cm. Is the triangle right-angled? Explain.

Applying Pythagoras' theory — Excellence

1. A rectangle has perimeter 34 cm and width 7 cm. Find its diagonal.
2. A square has perimeter 48 cm. Find its diagonal.
3. An isosceles triangle has perimeter 50 cm and base 20 cm. Find its height.
4. An isosceles triangle has equal sides 29 cm and height 21 cm. Find the base.
5. A ladder stands 5 m from a wall and reaches 12 m up it. Find the ladder length.
6. A rectangle has diagonal 25 cm. One side is 7 cm shorter. Find both sides.
7. Sides 9 cm, 12 cm, 15 cm. Is the triangle right-angled? Explain.
8. Sides 11 cm, 60 cm, 61 cm. Is the triangle right-angled? Explain.
9. Sides 12 cm, 18 cm, 21 cm. Is the triangle right-angled? Explain.

- 10.** A square has diagonal 18 cm. Find its area to 1 decimal place.
- 11.** A photo is 20 cm by 21 cm. Find its diagonal to 1 decimal place.
- 12.** An isosceles triangle has equal sides 13 cm and height 12 cm. Find the base.
- 13.** Sides 16 cm, 30 cm, 34 cm. Is the triangle right-angled? Justify.
- 14.** Sides 14 cm, 48 cm, 50 cm. Is the triangle right-angled? Justify.
- 15.** A square has side 5.5 m. Find its diagonal to 2 decimal places.
- 16.** A rectangle is 11 cm by 60 cm. Find its diagonal. Would a 61 cm brace fit exactly?