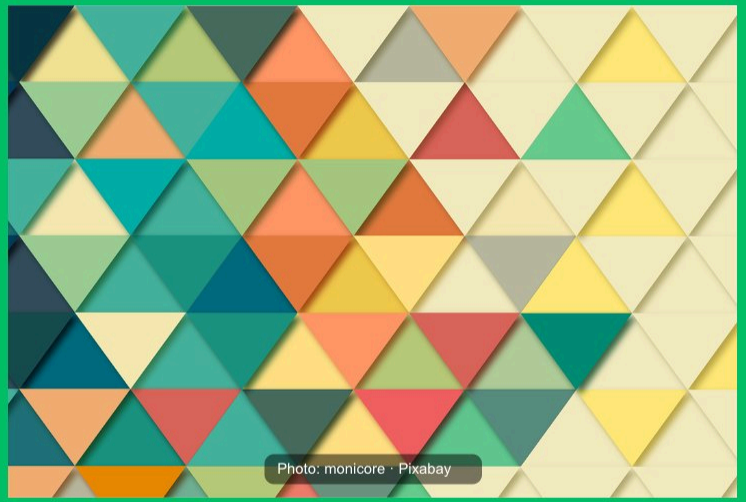
Area of a Trapezium

Double it, halve it, master it



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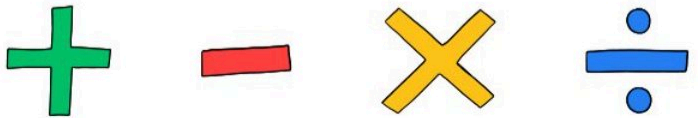
Today we will...

WE ARE LEARNING TO

- derive the area formula for a trapezium
- apply Area = ½ × (a + b) × h correctly

SUCCESS LOOKS LIKE

- ✓ I can explain why we average a and b
- ✓ I can use perpendicular height, not slant side



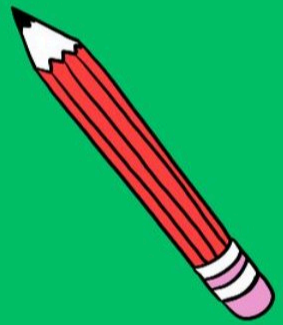
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$a^2+b^2=c^2$

Spot the Trapezium

1. A quadrilateral with exactly one pair of parallel sides
2. Parallel sides are called a and b
3. Height h meets them at right angles



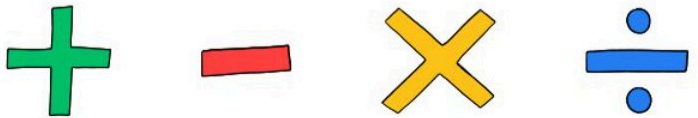


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DID YOU KNOW?

Two identical trapezia make one parallelogram.

Its base is a + b, so one trapezium is half of (a + b) × h.



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$a^2+b^2=c^2$

Think, pair, share

Height is 5 cm but slant side is 7 cm. Which do you use, and why?





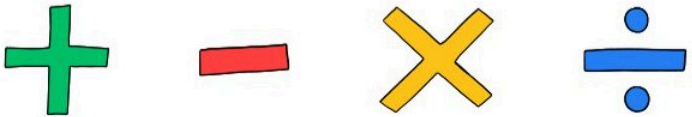
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Doubling to Discover the Formula



▶ 0:00 – 2:36

- Watch how rotating one copy makes a parallelogram
- Listen for where (a + b) comes from

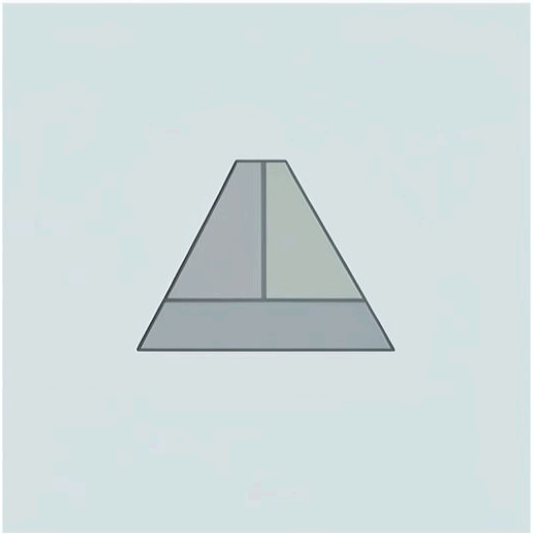


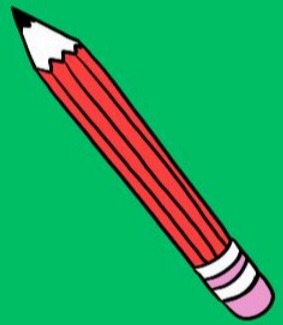
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$a^2+b^2=c^2$

Calculate in Three Steps

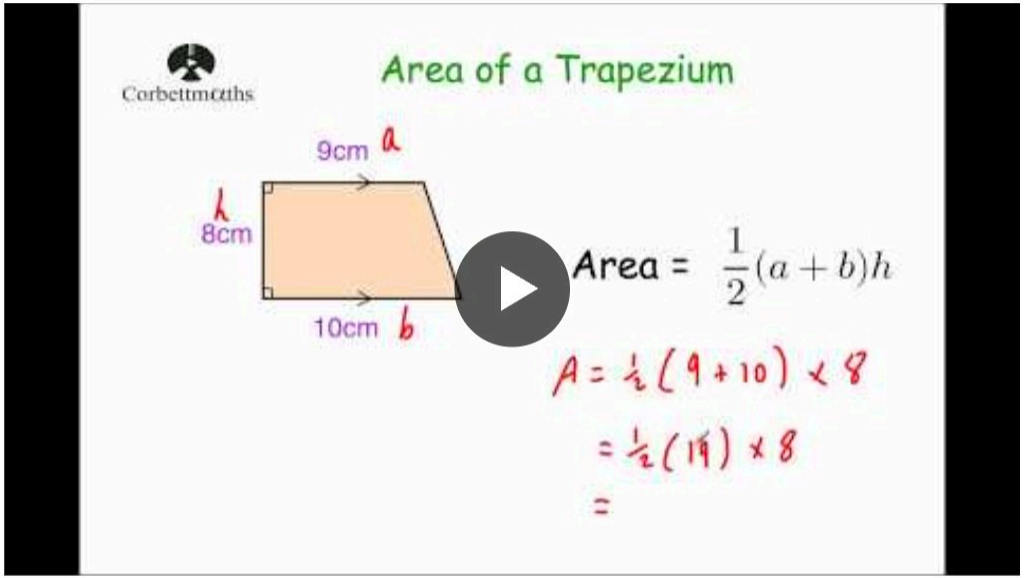
- Add the parallel sides: a + b
- Halve it to average them
- Multiply by perpendicular height h
- Example: ½ × (8 + 12) × 5 = 50 cm²





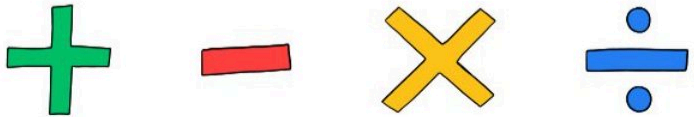
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Worked Examples to Copy



▶ 0:00 – 3:51

- Spot parallel sides marked with arrows
- Notice slant side is ignored for area



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$a^2+b^2=c^2$

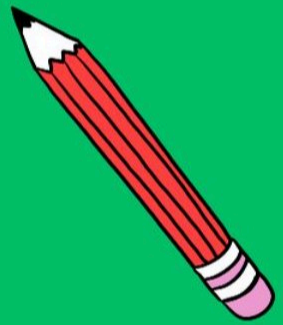
Your task

In pairs, calculate areas and find a missing side.

1. Record a and b and h with right-angle mark
2. Work out four areas, including 6 cm, 10 cm, 4 cm
3. Challenge: area 60 cm², h 6 cm, a 7 cm — find b

10 min

In pairs



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Key words

trapezium

quadrilateral with exactly one pair of parallel sides

parallel

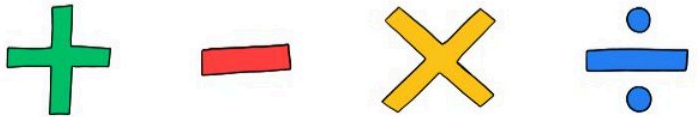
lines that stay apart and never meet

perpendicular height

gap between parallel sides, at 90 degrees

area

surface covered, measured in square units



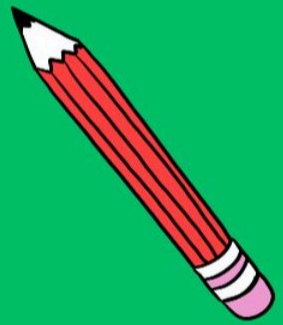
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$a^2+b^2=c^2$

How Will You Remember It?

Which version of the formula clicks best for you?

- **A** Average the parallel sides, then times height
- **B** Add a and b, halve, times h
- **C** Double to parallelogram, then halve

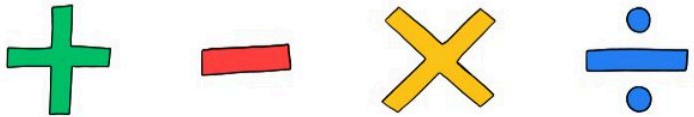


Vote with your hands, then explain why.

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Quick quiz

1. Parallel sides 6 cm and 10 cm, height 4 cm. Area?
2. Parallel sides 8 cm and 12 cm, height 5 cm. Area?
3. Area 60 cm^2, height 6 cm, one side 7 cm. Other side?
4. True or false: use the slant side for height?



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