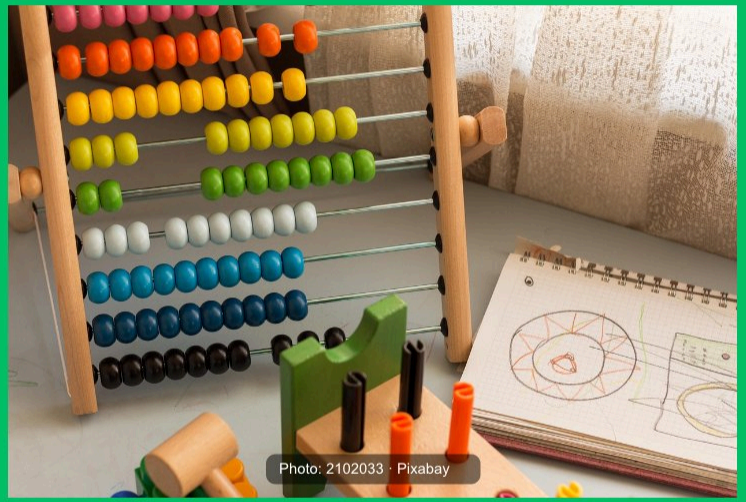
Multiplying Brackets Two and Three at a Time

From double brackets to triple brackets in 60 minutes



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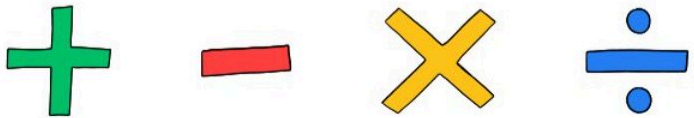
Today we will...

WE ARE LEARNING TO

- Expand products of two binomials
- Expand products of three binomials
- Collect like terms to simplify answers

SUCCESS LOOKS LIKE

- ✓ I can make all four multiplications correctly
- ✓ I can expand in stages for three brackets

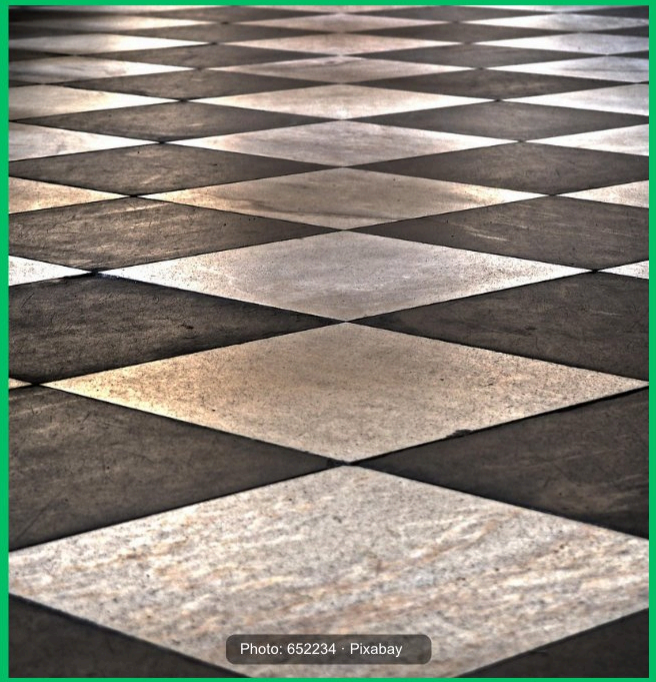


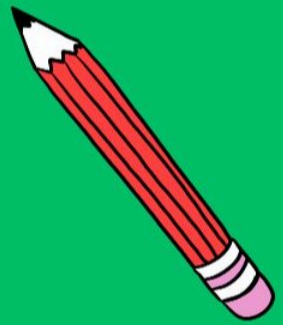
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$a^2+b^2=c^2$

BIG IDEA

Every term in the first bracket multiplies every term in the second.





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Key words

expand

multiply out to remove brackets

binomial

expression with two terms, like x + 3

like terms

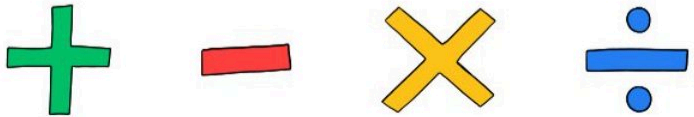
same letters and powers, can be added

simplify

collect like terms to make shorter



Photo: Aliva Sahoo · CC BY 4.0 · Wikimedia Commons



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

What could this be?

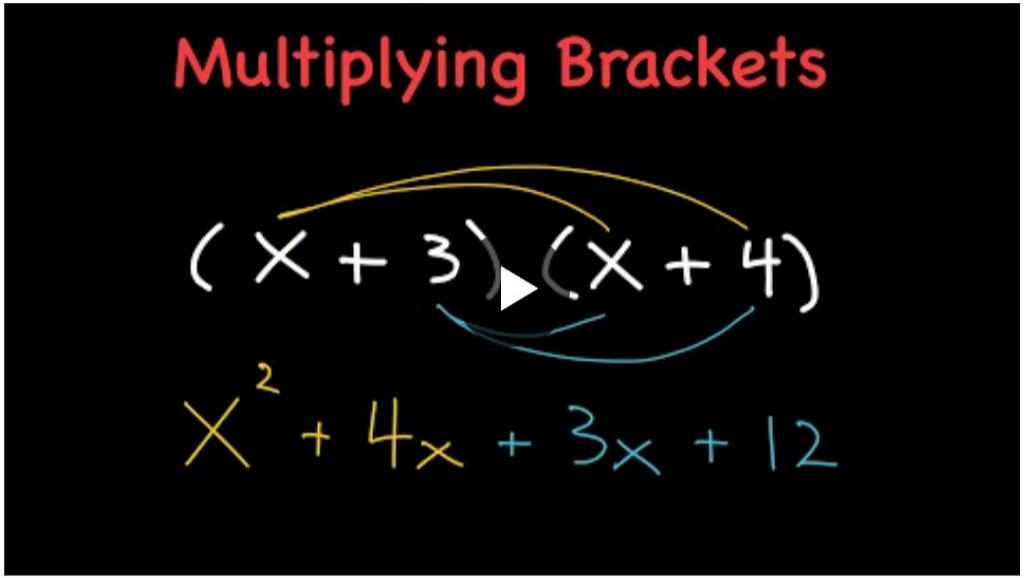
This patio is (x + 2) long and (x + 3) wide. What is its area?





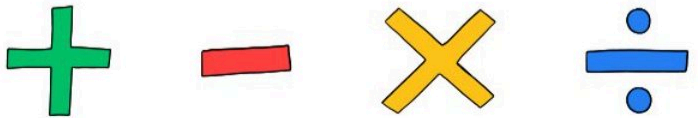
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Watch: two brackets together



▶ 0:00 – 1:53

- Count the four mini-products
- Watch how like terms are collected
- Note the sign rules for negatives



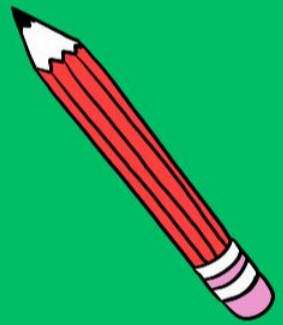
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$a^2+b^2=c^2$

Ways to see it

- FOIL order
- Four products
- Collect like terms
- Grid method
- Mind the signs
- Check with area

Double brackets



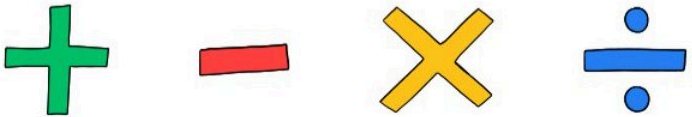
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Watch: three brackets



▶ 0:00 – 4:08

- See why we expand two brackets first
- Follow the products in stage two
- Look for the x cubed term



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

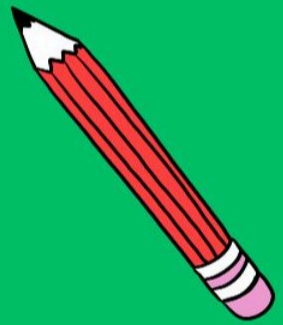
Your task

Expand six products with your partner and look for patterns.

1. Expand (x+2)(x+4), (x+5)(x-1) and (2x-3)(x+1)
2. Expand (x+3) squared and (x+3)(x-3)
3. Challenge: expand (x+1)(x+2)(x+3) in stages

10 min

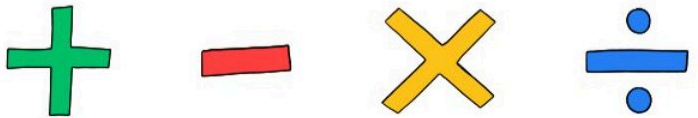
In pairs



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Five steps to success

1. Multiply each term in first bracket by each in second
2. Write all four products, keeping every sign
3. Collect like terms to simplify
4. For three brackets, simplify first two then multiply again
5. Check: squares give three terms, triples give four

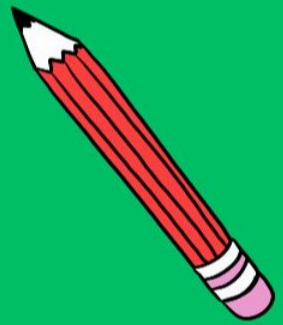


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$a^2+b^2=c^2$

Which way works for you?

Which method would you use for (x+4)(x–7)?



A Arrow FOIL across the brackets

B 2 by 2 grid table

C Split as x(x-7) + 4(x-7)

Vote with your hands, then explain why.

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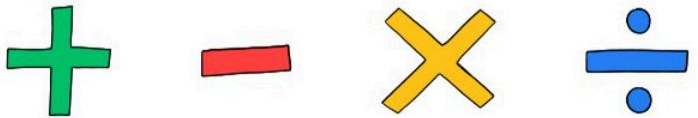
True or false?

$(x+2)(x+3) = x^2 + 5x + 6$

$(x+3)^2 = x^2 + 9$

$(x+3)(x-3) = x^2 - 9$

$(2x-3)(x+1) = 2x^2 - 2x - 3$



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