Plus or Minus?

Calculating with negative numbers



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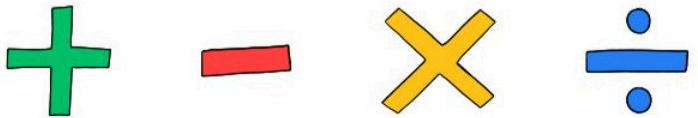
Today we will...

WE ARE LEARNING TO

- Add and subtract with negative integers and decimals
- Multiply and divide with positive and negative numbers
- Use formal methods for fractions and mixed numbers

SUCCESS LOOKS LIKE

- ✓ I can get the sign right for all four operations
- ✓ I can show clear column and fraction working

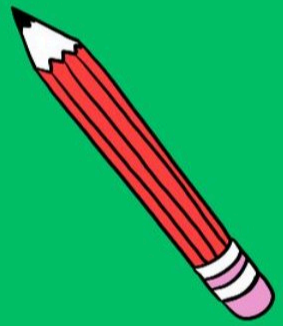


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$a^2+b^2=c^2$

Getting the sign right

1. Spot the signs and the operation first
2. Work out the numbers, ignore signs
3. For x and ÷: same signs make +, different make -
4. For + and -: move up or down a number line
5. Check: does the size and sign make sense?



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Four operations with negatives

+

Add

-5 + 8 = 3, move up the line.

−

Subtract

-4 - 6 = -10, move further down.

×

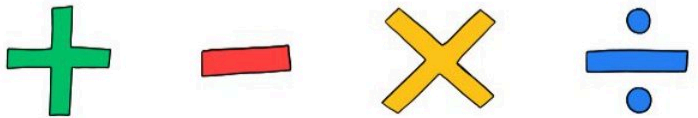
Multiply

-3 x 4 = -12, different signs.

÷

Divide

-20 ÷ -5 = 4, same signs.

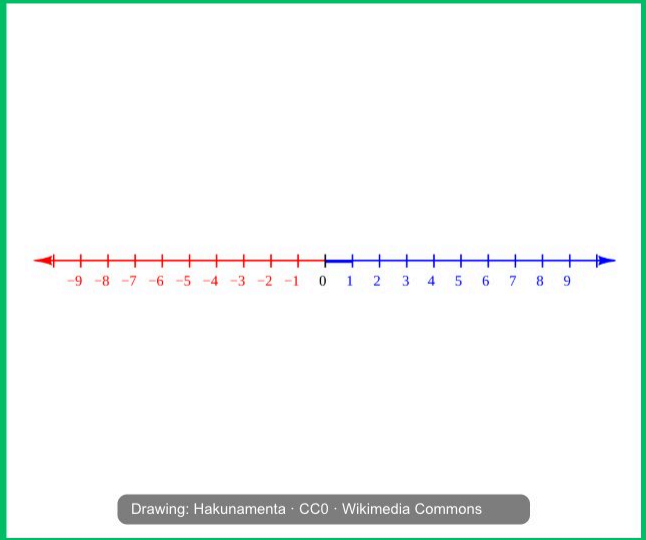


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$a^2+b^2=c^2$

Think, pair, share

A student says -2 - -5 = -7. Do you agree? Convince your partner.





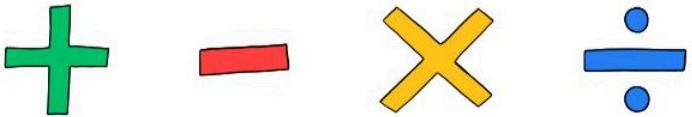
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Watch: all four with negatives



▶ 0:00 – 2:59

- How the line shows moving up or down
- Taking away a negative is the same as adding



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

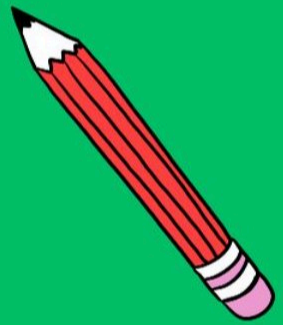
Same rules, new numbers

Integers

-24 + 13 = -11, count up 13.

Decimals

-3.6 + 1.2 = -2.4, line up points.



Fractions

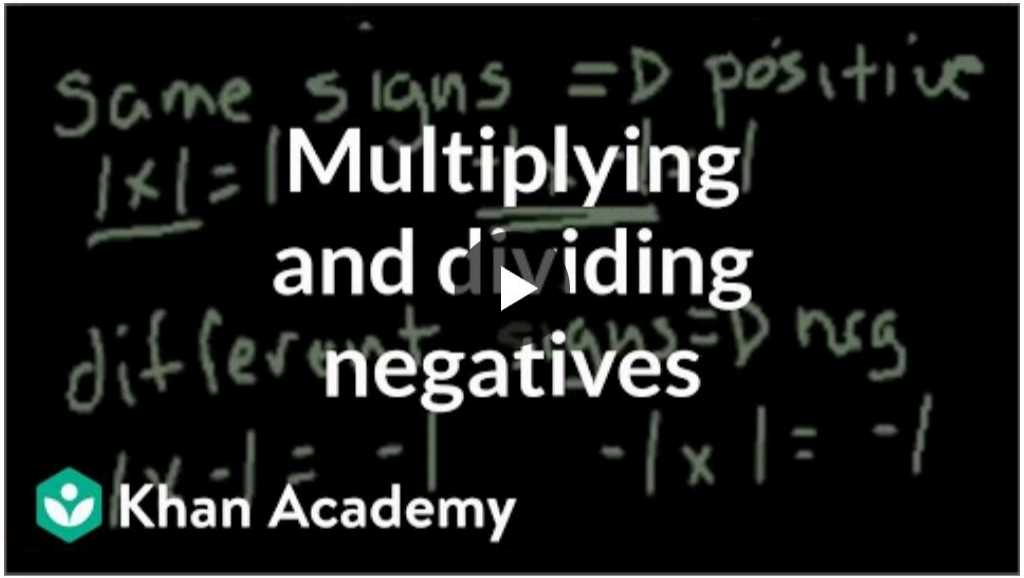
-2/3 + 5/6 = 1/6, use sixths.

Mixed numbers

-1 1/2 x 2 = -3, change first.

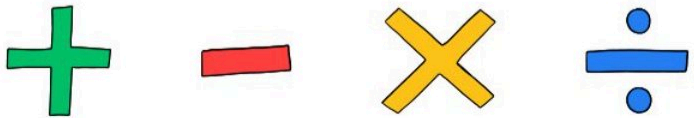
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Watch: multiply and divide



▶ 0:00 – 5:00

- How to spot same signs and different signs
- How to check answers with estimation



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

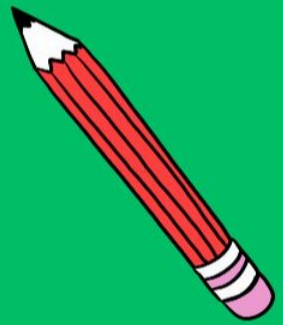
Your task

In pairs, work out four calculations and prove the signs are correct.

1. Work out: -24 + 13 and -3.6 - 2.4
2. Work out: -2/3 + 5/6 and -1 1/2 x 4
3. Show formal column or fraction working
4. Swap, mark and explain any sign slip

10 min

In pairs



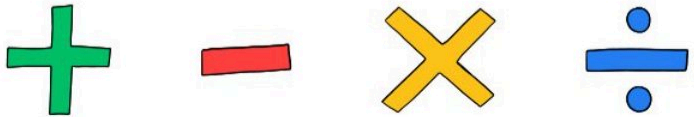
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DID YOU KNOW?

Adding zero never changes a number, even a negative.

Mathematicians call zero the additive identity because any number + 0 stays the same.





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

What could this be?

The red line sits below zero. What value is this, positive or negative?



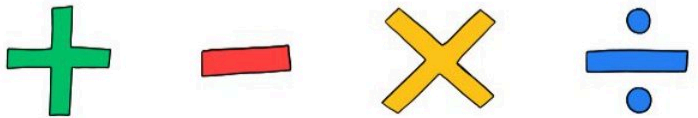
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Quick quiz

1. -7 + 4 = ?
2. -2.4 - 3.6 = ?
3. -5/6 + 1/3 = ?
4. -2 1/2 x 2 = ?



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