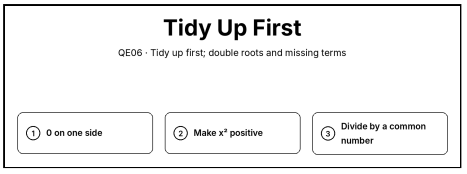
Tidy Up First: teacher script

QE06-V1 · QE06 Tidy up first; double roots and missing terms · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 99 seconds as a video.

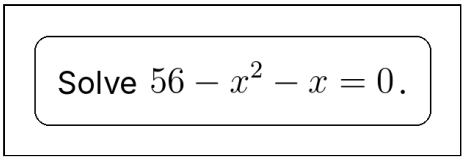
01



Say. Before you factor, tidy up. Get 0 on one side. Make the x squared term positive, multiplying every term by negative 1 if you need to. And divide every term by any common number.

Draw. Write the title “Tidy Up First” and the steps: 1. 0 on one side; 2. Make x² positive; 3. Divide by a common number.

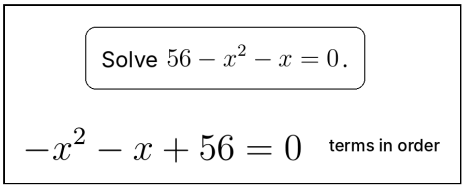
02



Say. Solve 56, minus x squared, minus x, equals 0.

Draw. Clear the board. Write “Solve 56 − x² − x = 0.” in a box at the top.

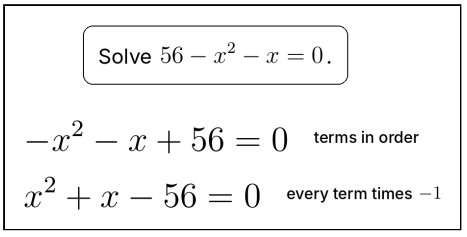
03



Say. Put the terms in order: negative x squared, minus x, plus 56.

Draw. Write −x² − x + 56 = 0 on the next line. Beside it, write “terms in order”.

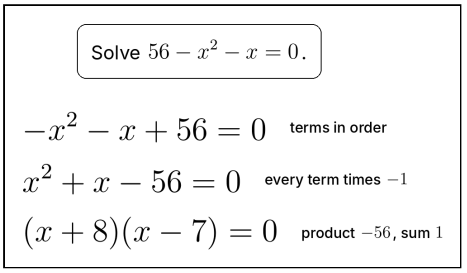
04



Say. Multiply every term by negative 1, so the x squared term is positive.

Draw. Write x² + x − 56 = 0 on the next line. Beside it, write “every term times −1”.

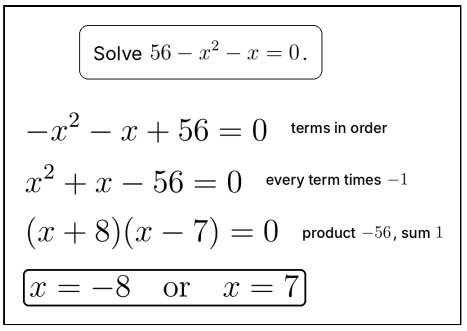
05



Say. Product negative 56, sum 1: 8 and negative 7.

Draw. Write (x + 8)(x − 7) = 0 on the next line. Beside it, write “product −56, sum 1”.

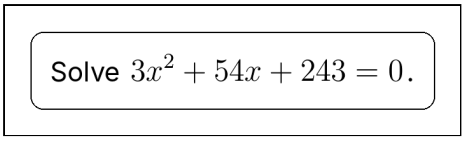
06



Say. So x equals negative 8 or x equals 7.

Draw. Write x = −8 or x = 7 and box it on the next line.

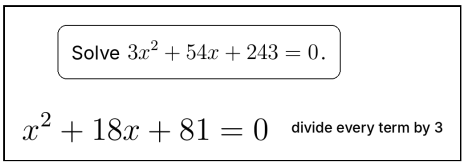
07



Say. Solve 3 x squared, plus 54 x, plus 243, equals 0.

Draw. Clear the board. Write “Solve 3x² + 54x + 243 = 0.” in a box at the top.

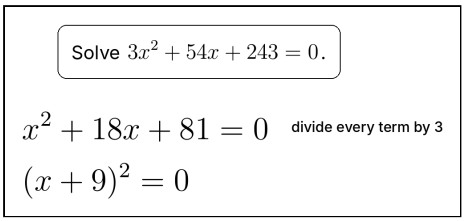
08



Say. Every term is a multiple of 3, so divide every term by 3.

Draw. Write x² + 18x + 81 = 0 on the next line. Beside it, write “divide every term by 3”.

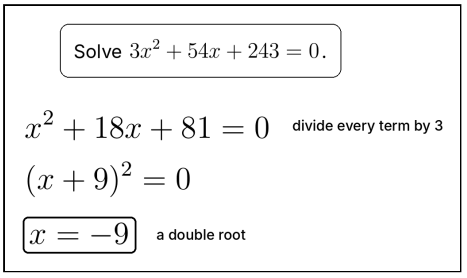
09



Say. Product 81, sum 18: 9 and 9. That is x plus 9, squared.

Draw. Write (x + 9)² = 0 on the next line.

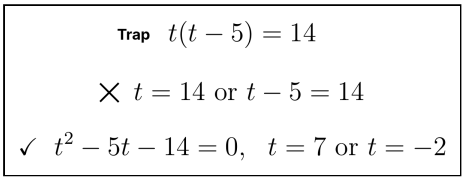
10



Say. Both factors give the same root, x equals negative 9: a double root.

Draw. Write x = −9 and box it on the next line. Beside it, write “a double root”.

11



Say. Watch for the trap: t times t minus 5 equals 14 does not mean t is 14, or t minus 5 is 14. That only works when the other side is 0. Subtract 14 first: t equals 7 or t equals negative 2.

Draw. Clear the board. Write “Trap” and t(t − 5) = 14. Below, write t = 14 or t − 5 = 14 and cross it out ×. Then write t² − 5t − 14 = 0,\ \ t = 7 or t = −2 with a tick ✓.

12

Trap $(x+9)^2 = 0$

$\times \quad x = \pm 9$

$\checkmark \quad x = -9$

Say. Another trap: x plus 9, squared, equals 0 does not give plus or minus 9. Both factors are x plus 9, so the only root is negative 9.

Draw. Clear the board. Write “Trap” and $(x + 9)^2 = 0$. Below, write $x = \pm 9$ and cross it out ×. Then write $x = -9$ with a tick ✓.

13

Your turn

0 on one side; x^2 positive.
Divide every term by a common number.

Say. Now it is your turn. 0 on one side, the x squared term positive, and divide every term by any common number.

Draw. Point to today’s activity: 0 on one side; x^2 positive. Divide every term by a common number.