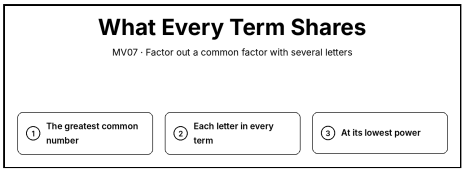
What Every Term Shares: teacher script

MV07-V1 · MV07 Factor out a common factor with several letters · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 74 seconds as a video.

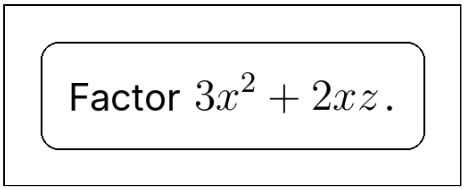
01



Say. What every term shares. Take out the greatest common number, and each letter that is in every term, at its lowest power.

Draw. Write the title “What Every Term Shares” and the steps: 1. The greatest common number; 2. Each letter in every term; 3. At its lowest power.

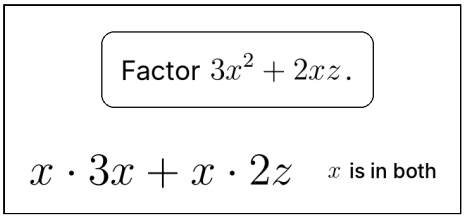
02



Say. Factor 3x² + 2xz.

Draw. Clear the board. Write “Factor 3x² + 2xz.” in a box at the top.

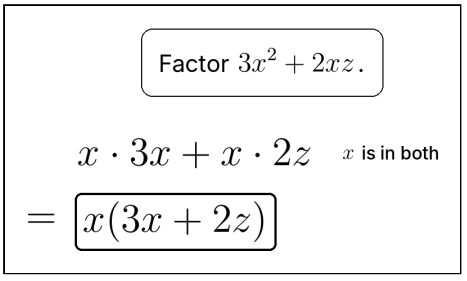
03



Say. Both terms have an x; z is only in the second one.

Draw. Write x · 3x + x · 2z on the next line. Beside it, write “x is in both”.

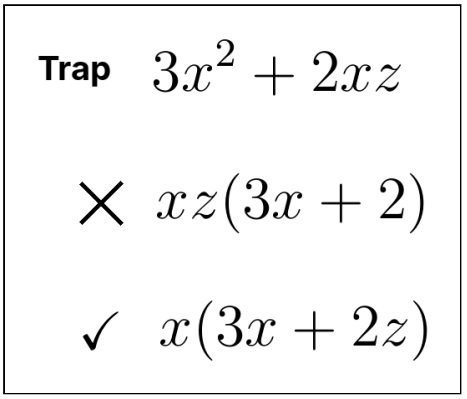
04



Say. Take out the x: x(3x + 2z).

Draw. Write = x(3x + 2z) and box it on the next line.

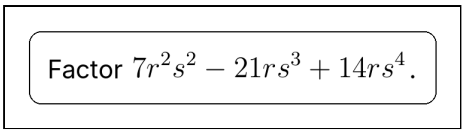
05



Say. Watch for the trap: taking out a letter that isn't in every term. z is missing from the first term, so only x comes out.

Draw. Clear the board. Write “Trap” and 3x² + 2xz. Below, write xz(3x + 2) and cross it out ×. Then write x(3x + 2z) with a tick ✓.

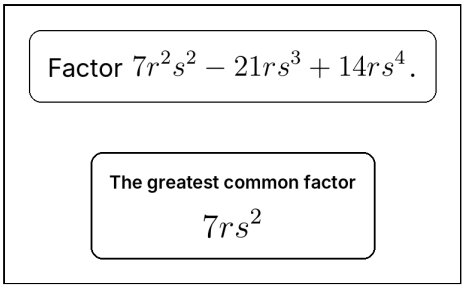
06



Say. Now factor 7r²s² − 21rs³ + 14rs⁴.

Draw. Clear the board. Write “Factor 7r²s² − 21rs³ + 14rs⁴.” in a box at the top.

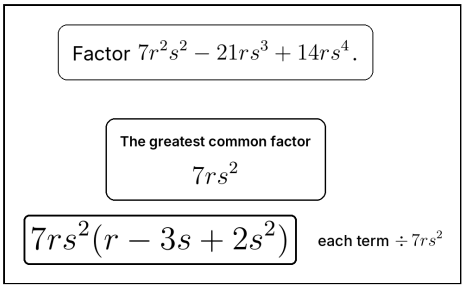
07



Say. The numbers share seven. Every term has at least one r, and at least two s's. So the greatest common factor is 7rs².

Draw. Write the rule in a box: 7rs².

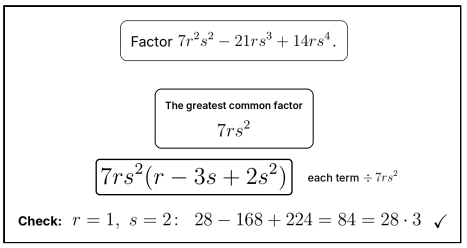
08



Say. Divide each term by 7rs²: r, then −3s, then 2s².

Draw. Write 7rs²(r − 3s + 2s²) and box it on the next line. Beside it, write “each term \div 7rs²”.

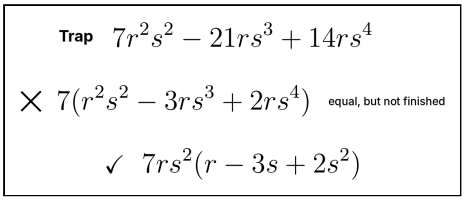
09



Say. Check with r = 1 and s = 2: both come to 84.

Draw. Below, write “Check: r = 1,\ s = 2: 28 − 168 + 224 = 84 = 28 · 3” and tick it ✓.

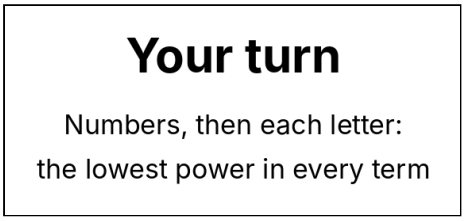
10



Say. Watch for the trap: stopping at seven. The bracket still shares rs². Take out 7rs².

Draw. Clear the board. Write “Trap” and 7r²s² − 21rs³ + 14rs⁴. Below, write 7(r²s² − 3rs³ + 2rs⁴) and cross it out ×. Then write 7rs²(r − 3s + 2s²) with a tick ✓.

11



Say. Now it is your turn. Numbers, then each letter: the lowest power in every term.

Draw. Point to today’s activity: Numbers, then each letter: the lowest power in every term