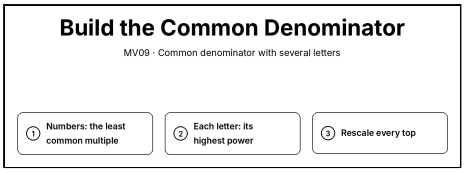
Build the Common Denominator: teacher script

MV09-V1 · MV09 Common denominator with several letters · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 87 seconds as a video.

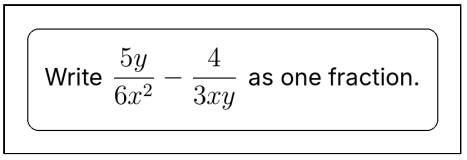
01



Say. Build the common denominator. For the numbers, take the least common multiple. For each letter, its highest power. Then rescale every top.

Draw. Write the title “Build the Common Denominator” and the steps: 1. Numbers: the least common multiple; 2. Each letter: its highest power; 3. Rescale every top.

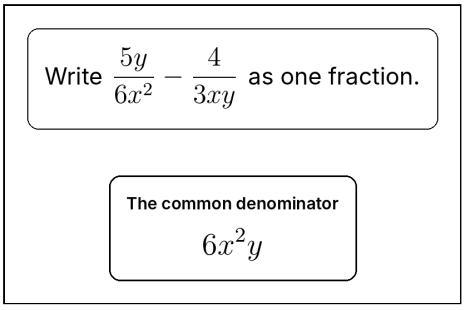
02



Say. Write 5y/(6x²) − 4/(3xy) as one fraction.

Draw. Clear the board. Write “Write 5y/(6x²) − 4/(3xy) as one fraction.” in a box at the top.

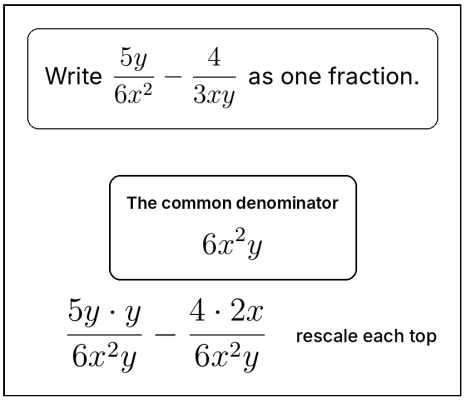
03



Say. Six and three need six. x² and x need x². And there is a y. So the common denominator is 6x²y.

Draw. Write the rule in a box: 6x²y.

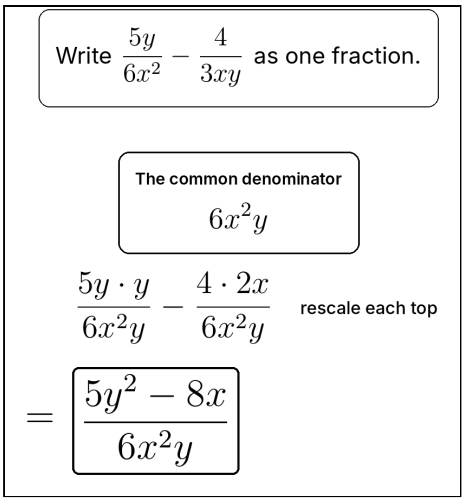
04



Say. Rescale each top by what its bottom was multiplied by: y for the first, 2x for the second.

Draw. Write (5y · y)/(6x²y) − (4 · 2x)/(6x²y) on the next line. Beside it, write “rescale each top”.

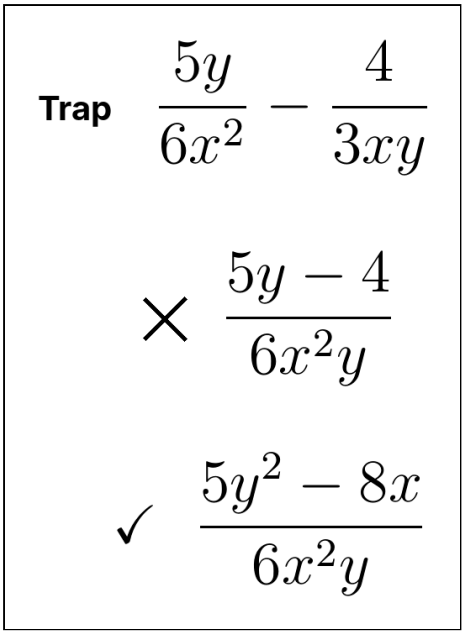
05



Say. Combine the tops: 5y² − 8x, over 6x²y.

Draw. Write = (5y² − 8x)/(6x²y) and box it on the next line.

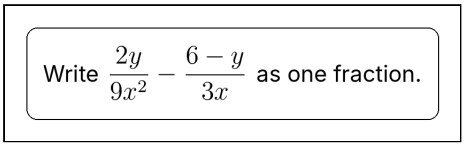
06



Say. Watch for the trap: rescaling the bottom but not the top. Whatever multiplies the bottom multiplies the top too.

Draw. Clear the board. Write “Trap” and 5y/(6x²) − 4/(3xy). Below, write (5y − 4)/(6x²y) and cross it out ×. Then write (5y² − 8x)/(6x²y) with a tick ✓.

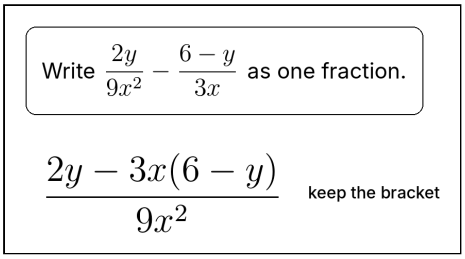
07



Say. Now write 2y/(9x²) − (6 − y)/(3x) as one fraction.

Draw. Clear the board. Write “Write 2y/(9x²) − (6 − y)/(3x) as one fraction.” in a box at the top.

08



Say. Over 9x², the second top is multiplied by 3x, and it keeps its bracket.

Draw. Write (2y − 3x(6 − y))/(9x²) on the next line. Beside it, write “keep the bracket”.

09

Write $\frac{2y}{9x^2} - \frac{6-y}{3x}$ as one fraction.

$$\frac{2y - 3x(6-y)}{9x^2}$$ keep the bracket

$$= \boxed{\frac{2y - 18x + 3xy}{9x^2}}$$

Say. The minus changes both signs in the bracket: 2y − 18x + 3xy, over 9x².

Draw. Write = (2y − 18x + 3xy)/(9x²) and box it on the next line.

10

Trap $-3x(6-y)$

$\times \quad -18x - 3xy$

$\checkmark \quad -18x + 3xy$

Say. Watch for the trap: losing the bracket. Negative 3x times negative y is positive 3xy.

Draw. Clear the board. Write “Trap” and −3x(6 − y). Below, write −18x − 3xy and cross it out ×. Then write −18x + 3xy with a tick ✓.

11

Your turn

Build the denominator part by part, and rescale every top

Say. Now it is your turn. Build the denominator part by part, and rescale every top.

Draw. Point to today’s activity: Build the denominator part by part, and rescale every top