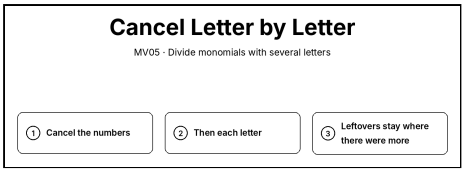
Cancel Letter by Letter: teacher script

MV05-V1 · MV05 Divide monomials with several letters · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 60 seconds as a video.

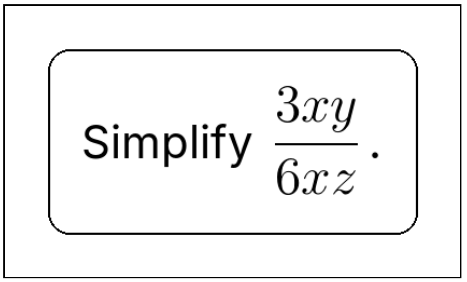
01



Say. Cancel letter by letter. First cancel the numbers, then each letter on its own. What is left of a letter stays where there were more.

Draw. Write the title “Cancel Letter by Letter” and the steps: 1. Cancel the numbers; 2. Then each letter; 3. Leftovers stay where there were more.

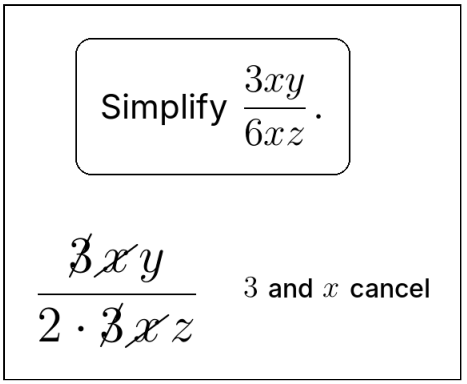
02



Say. Simplify 3xy/(6xz).

Draw. Clear the board. Write “Simplify 3xy/(6xz).” in a box at the top.

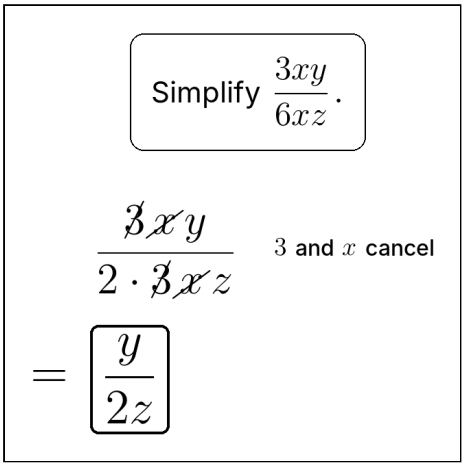
03



Say. The three cancels, and the x on top cancels the x underneath.

Draw. Write ~~3~~ ~~x~~ y/(2 · ~~3~~ ~~x~~ z) on the next line. Beside it, write “3 and x cancel”. Cross out the factors that cancel, one on top with one underneath.

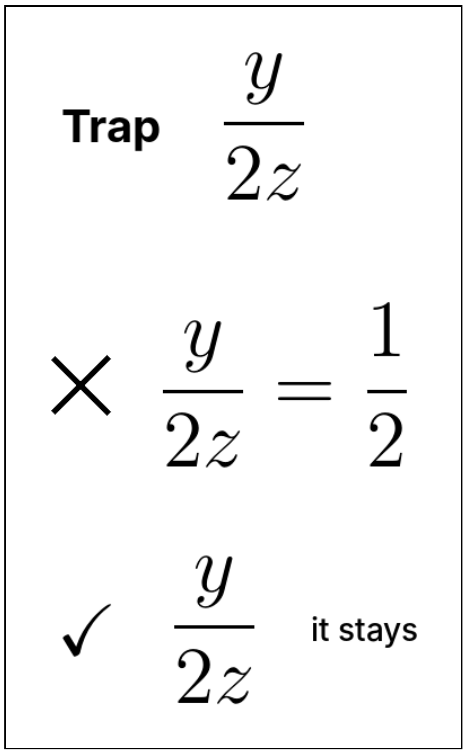
04



Say. y and z are different letters, so they stay: y over 2z.

Draw. Write = y/(2z) and box it on the next line.

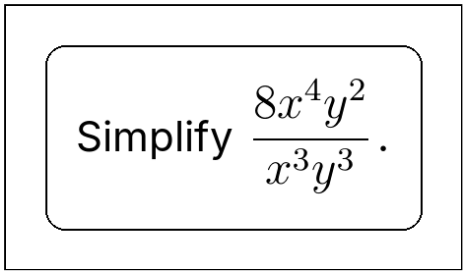
05



Say. Watch for the trap: cancelling different letters. Only the same letter cancels: y over 2z stays.

Draw. Clear the board. Write “Trap” and y/(2z). Below, write y/(2z) = 1/2 and cross it out ×. Then write y/(2z) with a tick ✓.

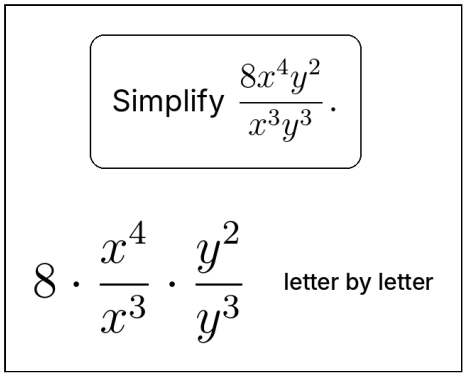
06



Say. Now simplify $8x^4y^2/(x^3y^3)$.

Draw. Clear the board. Write “Simplify $8x^4y^2/(x^3y^3)$.” in a box at the top.

07



Say. Take each letter on its own.

Draw. Write $8 \cdot x^4/x^3 \cdot y^2/y^3$ on the next line. Beside it, write “letter by letter”.

08

Simplify $\frac{8x^4y^2}{x^3y^3}$.

$$8 \cdot \frac{x^4}{x^3} \cdot \frac{y^2}{y^3}$$ letter by letter

$$= 8 \cdot x \cdot \frac{1}{y}$$ more y's below

Say. More x's on top: one x stays on top. More y's underneath: one y stays underneath.

Draw. Write = 8 · x · 1/y on the next line. Beside it, write “more y’s below”.

09

Simplify $\frac{8x^4y^2}{x^3y^3}$.

$$8 \cdot \frac{x^4}{x^3} \cdot \frac{y^2}{y^3}$$ letter by letter

$$= 8 \cdot x \cdot \frac{1}{y}$$ more y's below

$$= \boxed{\frac{8x}{y}}$$

Say. So it is 8x over y.

Draw. Write = 8x/y and box it on the next line.

10

Trap $\frac{8x^4y^2}{x^3y^3}$

$\times$ $8xy$

✓ $\frac{8x}{y}$

Say. Watch for the trap: putting everything on top. The leftover y stays underneath.

Draw. Clear the board. Write “Trap” and $8x^4y^2/(x^3y^3)$. Below, write 8xy and cross it out ×. Then write 8x/y with a tick ✓.

11

Your turn

Numbers, then each letter;
leftovers stay where there were more

Say. Now it is your turn. Numbers, then each letter, and leftovers stay where there were more.

Draw. Point to today’s activity: Numbers, then each letter; leftovers stay where there were more