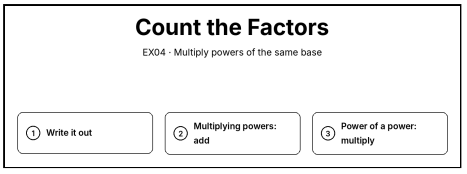
Count the Factors: teacher script

EX04-V1 · EX04 Multiply powers of the same base · teachers only. Without a screen, read each Say line and draw each Draw step on the board. About 60 seconds as a video.

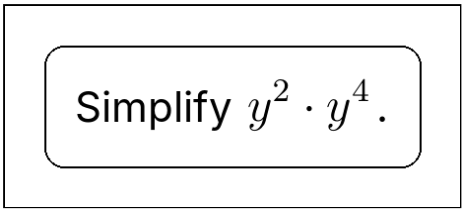
01



Say. Count the factors. When you are unsure, write the product out. Multiplying powers adds the exponents; a power of a power multiplies them.

Draw. Write the title “Count the Factors” and the steps: 1. Write it out; 2. Multiplying powers: add; 3. Power of a power: multiply.

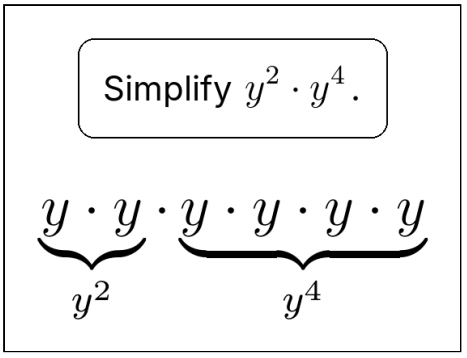
02



Say. Simplify y^2 times y^4.

Draw. Clear the board. Write “Simplify $y^2 \cdot y^4$.” in a box at the top.

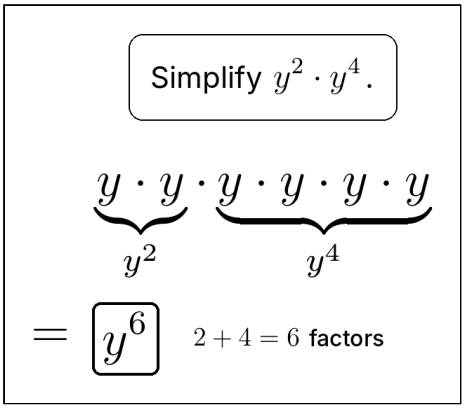
03



Say. Write it out: two y's, then four more.

Draw. Write y · y · y · y · y · y on the next line.

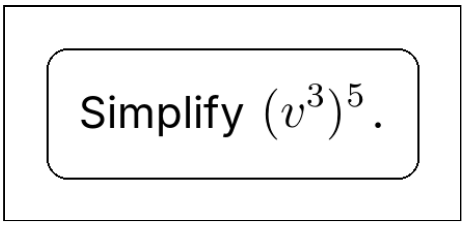
04



Say. That is six factors of y: y^6. Two plus four is six.

Draw. Write = y^6 and box it on the next line. Beside it, write “2 + 4 = 6 factors”.

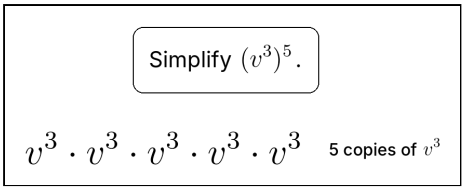
05



Say. Now v cubed, all to the fifth power.

Draw. Clear the board. Write “Simplify $(v^3)^5$.” in a box at the top.

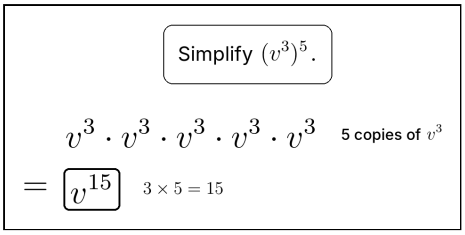
06



Say. That is five copies of v^3.

Draw. Write $v^3 \cdot v^3 \cdot v^3 \cdot v^3 \cdot v^3$ on the next line. Beside it, write “5 copies of v^3”.

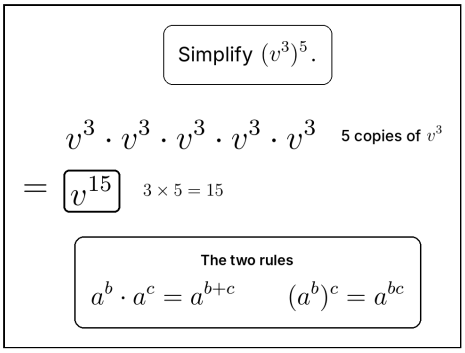
07



Say. Five groups of three factors: three times five is fifteen. v^{15}.

Draw. Write = v^{15} and box it on the next line. Beside it, write “3 × 5 = 15”.

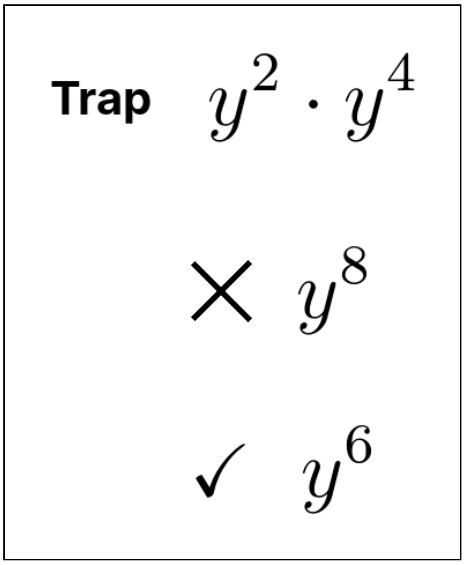
08



Say. So multiplying powers of the same base adds the exponents, and a power of a power multiplies them.

Draw. Write the rule in a box: ab · ac = ab⁺c (ab)c = abc.

09



Say. Watch for the trap: multiplying the exponents in a product. y^2 times y^4 is not y^8. Count them: six factors, y^6.

Draw. Clear the board. Write “Trap” and $y^2 \cdot y^4$. Below, write y^8 and cross it out ×. Then write y^6 with a tick ✓.

10

Your turn

When in doubt,
write it out and count

Say. Now it is your turn. When in doubt, write it out and count.

Draw. Point to today’s activity: When in doubt, write it out and count