Cancel Letter by Letter

MV05-V1 · storyboard · MV05 Divide monomials with several letters. Read each picture with its sentences.

Picture 1

Simplify $\dfrac{3xy}{6xz}$.

$$\frac{\cancel{3}\cancel{x}y}{2\cdot\cancel{3}\cancel{x}z} \qquad 3 \text{ and } x \text{ cancel}$$

$$= \boxed{\frac{y}{2z}}$$

1. Simplify 3xy/(6xz).
2. The three cancels, and the x on top cancels the x underneath.
3. y and z are different letters, so they stay: y over 2z.

Picture 2

Trap $\frac{y}{2z}$

$$\times \frac{y}{2z} = \frac{1}{2}$$

✓ $\frac{y}{2z}$ it stays

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

Picture 3

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

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

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

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

6. Now simplify $8x^4y^2/(x^3y^3)$.
7. Take each letter on its own.
8. More x's on top: one x stays on top.
9. More y's underneath: one y stays underneath.
10. So it is 8x over y.

Picture 4

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

$\times\ 8xy$

✓ $\dfrac{8x}{y}$

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