One Denominator: Part 2

EX14-V2 · storyboard · EX14 Common denominator: single-term denominators. Read each picture with its sentences.

Picture 1

Write $\frac{x+1}{3} - \frac{x-2}{6}$ as one fraction.

$$\frac{2(x+1)}{6} - \frac{x-2}{6}$$ LCD 6: the whole top $\times 2$

$$= \frac{2x+2-x+2}{6}$$ the minus changes both signs

$$= \boxed{\frac{x+4}{6}}$$

1. Write x + 1 over three, minus x − 2 over six, as one fraction.
2. The lowest common denominator is six.
3. The whole of the first top is multiplied by two: two times the bracket x + 1.
4. Now take away the second top.
5. The minus changes both of its signs: minus x, plus two.
6. Combine: x plus four, over six.

Picture 2

Write $\dfrac{4}{3y} - \dfrac{5-y}{5y^2}$ as one fraction.

$$\frac{20y - 3(5-y)}{15y^2}$$ LCD $15y^2$; keep the bracket

$$= \frac{20y - 15 + 3y}{15y^2}$$ $-3 \cdot (-y) = +3y$

$$= \boxed{\frac{23y - 15}{15y^2}}$$

7. Now four over three y, minus the fraction 5 − y over five y².
8. Three and five give fifteen, and the highest power of y is y².
9. Rescale both tops, and keep the bracket: twenty y, minus three times the bracket 5 − y.
10. Minus three times negative y is plus three y.
11. So it is twenty-three y minus fifteen, over fifteen y².

Picture 3

Trap $-3(5-y)$

$\times \quad -15-3y$

$\checkmark \quad -15+3y$

12. Watch for the trap: losing the bracket.
13. Minus three times the bracket 5 − y is not negative fifteen minus three y.
14. The minus changes every sign: negative fifteen plus three y.

Picture 4

Trap $\dfrac{1}{x} + \dfrac{2}{x^2}$

× $\dfrac{x^2 + 2x}{x^3}$ equal, but not finished

✓ $\dfrac{x + 2}{x^2}$

15. And use the lowest denominator.
16. Over x^3 you get an answer that still shares x on the top and the bottom.
17. Over x^2 it is finished: x plus two, over x^2.