FRACTIONS · PART 6 OF 8 · AGES 11–14

Common Fraction Mistakes

Six slips that cost marks, with the wrong working, the right working and why it goes wrong.

1 Adding the denominators

✗ WRONG

~~1/2 + 1/3 = 2/5~~

✓ RIGHT

1/2 + 1/3 = 3/6 + 2/6 = 5/6

Denominators name the size of the parts. Make the parts the same size first, then add only the numerators. 2/5 is less than 1/2, so it cannot be right.

2 Not simplifying

✗ WRONG

~~4/10 + 2/10 = 6/10, left as it is~~

✓ RIGHT

6/10 = 3/5 (divide top and bottom by 2)

6/10 is correct but not finished. Answers are expected in their simplest form: divide by the highest common factor.

3 Flipping the wrong fraction

✗ WRONG

~~2/3 ÷ 4/5 = 3/2 × 4/5 = 6/5~~

✓ RIGHT

2/3 ÷ 4/5 = 2/3 × 5/4 = 10/12 = 5/6

Only the second fraction, the divisor, is flipped. Check: 2/3 is less than 4/5, so the answer must be less than 1.

4 Multiplying mixed numbers in pieces

✗ WRONG

~~2 1/2 × 2 1/2 = 4 1/4~~

✓ RIGHT

5/2 × 5/2 = 25/4 = 6 1/4

2 1/2 means 2 + 1/2, so splitting it misses 2 × 1/2 and 1/2 × 2. Convert to improper fractions first. Check: 2.5 × 2.5 = 6.25.

5 Comparing by denominator size

✗ WRONG

~~5/8 > 2/3 because 8 > 3~~

✓ RIGHT

5/8 = 15/24 and 2/3 = 16/24, so 2/3 is bigger

A bigger denominator means smaller pieces, not a bigger fraction. Use a common denominator or decimals (0.625 and 0.666...).

6 Adding to top and bottom

✗ WRONG

~~2/3 = 3/4 (add 1 to both)~~

✓ RIGHT

2/3 = 4/6 (multiply both by 2)

Only multiplying or dividing top and bottom by the same number keeps the value. 2/3 ≈ 0.667 but 3/4 = 0.75.

Estimate, then check

Most of these slips give an answer of the wrong size. Before you calculate, decide roughly how big the answer should be. Afterwards, check it with decimals.

NEXT IN THE SERIES
7. Fractions in Everyday Life

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