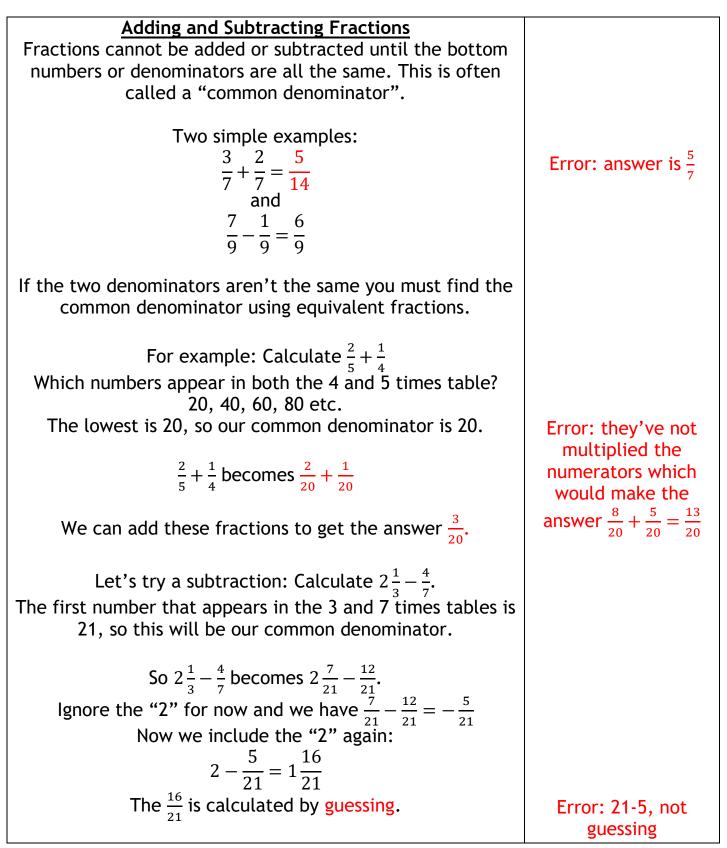# Spot The Mistakes – Fractions 3 - Answers

Read the notes in the table below which contain some deliberate mistakes. Find the mistakes by circling or highlighting them in the notes and use the blank column on the right-hand side to correct the mistake.

When you think you've finished ask the person you are sitting beside to check your corrections.

Adding and Subtracting Fractions	
Fractions cannot be added or subtracted until the bottom numbers or denominators are all the same. This is often called a "common denominator".	
Two simple examples: $$\frac{3}{7} + \frac{2}{7} = \frac{5}{14}$$ and $$\frac{7}{9} - \frac{1}{9} = \frac{6}{9}$$	Error: answer is $\frac{5}{7}$
If the two denominators aren't the same you must find the common denominator using equivalent fractions.	
For example: Calculate $\frac{2}{5} + \frac{1}{4}$ Which numbers appear in both the 4 and 5 times table? 20, 40, 60, 80 etc. The lowest is 20, so our common denominator is 20. $$\frac{2}{5} + \frac{1}{4} \text{ becomes } \frac{2}{20} + \frac{1}{20}$$ We can add these fractions to get the answer $\frac{3}{20}$.	Error: they've not multiplied the numerators which would make the answer $\frac{8}{20} + \frac{5}{20} = \frac{13}{20}$
Let's try a subtraction: Calculate $2\frac{1}{3} - \frac{4}{7}$. The first number that appears in the 3 and 7 times tables is 21, so this will be our common denominator. $$\text{So } 2\frac{1}{3} - \frac{4}{7} \text{ becomes } 2\frac{7}{21} - \frac{12}{21}.$$ Ignore the "2" for now and we have $\frac{7}{21} - \frac{12}{21} = -\frac{5}{21}$ Now we include the "2" again: $$2 - \frac{5}{21} = 1\frac{16}{21}$$ The $\frac{16}{21}$ is calculated by guessing.	Error: 21-5, not guessing

Multiplying Fractions

Before multiplying fractions you must convert any mixed numbers to improper fractions.

In order to multiply fractions:
Multiply top
Multiply bottom

For example:
$$\frac{3}{5} \times \frac{4}{7} = \frac{12}{45}$$

Error: answer is $\frac{12}{35}$

and

$$2\frac{1}{3} \times 1\frac{3}{8} = \frac{7}{3} \times \frac{11}{8} = \frac{77}{24} = 3\frac{5}{24}$$

Dividing Fractions

Before dividing fractions you must convert any improper fractions to mixed numbers.

Error: improper fractions and mixed numbers are the wrong way around

In order to divide fractions:
Turn the divisor (left hand fraction) upside down
Multiply top
Multiply bottom

Error: should say "right hand fraction"

For example:
$$\frac{3}{5} \div \frac{4}{7} = \frac{3}{5} \times \frac{4}{7} = \frac{12}{35}$$

Error: answer is
$$\frac{3}{5} \div \frac{4}{7} = \frac{3}{5} \times \frac{7}{4} = \frac{21}{20}$$
$$= 1\frac{1}{20}$$

and

$$2\frac{1}{3} \div 1\frac{3}{8} = \frac{7}{3} \div \frac{11}{8} = \frac{7}{3} \times \frac{8}{11} = \frac{56}{33} = 1\frac{23}{33}$$