

Boost Free Lessons - Year 6 Maths

Lesson 8: Adding Fractions with Related Denominators

Name: _____ Grade: _____ Date: _____

Worked Example 1

Work out $\frac{1}{2} + \frac{1}{4}$.

1. The denominators are different, so the pieces are different sizes.
2. Notice that 4 is a multiple of 2, so change the halves into quarters.
3. $\frac{1}{2} = \frac{2}{4}$, by multiplying top and bottom by 2.
4. Now both are quarters: $\frac{2}{4} + \frac{1}{4} = \frac{3}{4}$.

$$\frac{1}{2} + \frac{1}{4} = \frac{3}{4}$$

Worked Example 2

Work out $\frac{2}{3} + \frac{1}{6}$.

1. 6 is a multiple of 3, so change the thirds into sixths.
2. $\frac{2}{3} = \frac{4}{6}$, by multiplying top and bottom by 2.
3. Now add: $\frac{4}{6} + \frac{1}{6} = \frac{5}{6}$.
4. Check whether it simplifies. 5 and 6 share no factor, so it is already simplest.

$$\frac{2}{3} + \frac{1}{6} = \frac{5}{6}$$

Remember: When one denominator is a **multiple** of the other, change the smaller one to match. Multiply top and bottom by the same number, then add the numerators only.



Question 1: Work out the following, simplifying where you can.

1. $\frac{1}{2} + \frac{1}{6}$

2. $\frac{1}{3} + \frac{1}{6}$

3. $\frac{1}{4} + \frac{1}{8}$

4. $\frac{2}{5} + \frac{1}{10}$

5. $\frac{1}{2} + \frac{3}{8}$

6. $\frac{3}{4} + \frac{1}{8}$

7. $\frac{1}{3} + \frac{4}{9}$

8. $\frac{1}{2} + \frac{1}{10}$



Question 2: Work out the following.

1. $\frac{2}{3} + \frac{5}{12}$

2. $\frac{3}{4} + \frac{5}{8}$

3. $\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$

4. $1\frac{1}{2} + \frac{1}{4}$

5. $\frac{5}{6} + \frac{1}{3}$

6. Why must the denominators match before you can add?



Question 3: Answer the following questions.

1. Ella ate $\frac{1}{2}$ of a pizza and Sam ate $\frac{1}{4}$. How much did they eat altogether?
2. A jug holds $\frac{2}{3}$ of a litre. Another holds $\frac{1}{6}$. Find the total.
3. A recipe needs $\frac{1}{4}$ cup of oil and $\frac{3}{8}$ cup of milk. Find the total liquid.
4. Mia walked $\frac{1}{2}$ km then $\frac{3}{10}$ km. How far in total?
5. Explain why $\frac{1}{2} + \frac{1}{4}$ is not $\frac{2}{6}$.





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Answers: Adding Fractions with Related Denominators**Question 1**

1. $\frac{4}{6} = \frac{2}{3}$
2. $\frac{3}{6} = \frac{1}{2}$
3. $\frac{3}{8}$
4. $\frac{5}{10} = \frac{1}{2}$
5. $\frac{7}{8}$
6. $\frac{7}{8}$
7. $\frac{7}{9}$
8. $\frac{6}{10} = \frac{3}{5}$

Question 2

1. $1\frac{1}{12}$
2. $1\frac{3}{8}$
3. $\frac{7}{8}$
4. $1\frac{3}{4}$
5. $1\frac{1}{6}$
6. The denominator tells you the size of each piece, and you can only add pieces that are the same size.

Question 3

1. $\frac{3}{4}$ of the pizza
2. $\frac{5}{6}$ of a litre
3. $\frac{5}{8}$ of a cup
4. $\frac{4}{5}$ km
5. You add only the numerators once the denominators match. Adding both parts changes the size of the pieces.

