nexamind EDUCATION

Name _____ Date _____

7.2 Adding and subtracting fractions — worksheet

Add and subtract fractions and mixed numbers, using a common denominator and simplifying the answer. · 50 questions · Show your working.

Remember

• You can only add or subtract fractions when the **denominators match** — the parts must be the same size.
• Find the **lowest common denominator**: the LCM of the two denominators.
• Rewrite each fraction over that denominator, then add or subtract the **numerators only**.
• The denominator does not change when you add. 2/7 + 3/7 = 5/7, not 5/14.
• Simplify the answer, and write an improper answer as a mixed number if the question is in mixed numbers.
• For mixed numbers, either add the parts separately or convert to improper fractions first.
• For **subtracting** mixed numbers, converting to improper fractions avoids borrowing — it is the safer route.
• Estimate first: 1/2 + 1/3 must be more than 1/2, so an answer of 2/5 is wrong before you check anything else.

A · Fluency — Add and subtract, then simplify.

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

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

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

4 Work out $\frac{2}{5} + \frac{1}{5}$

5 Work out $\frac{1}{2} + \frac{1}{3}$

6 Work out $\frac{3}{4} + \frac{1}{6}$

7 Work out $\frac{2}{3} + \frac{1}{4}$

8 Work out $\frac{3}{5} + \frac{1}{2}$

9 Work out $\frac{5}{8} + \frac{1}{4}$

10 Work out $\frac{1}{6} + \frac{3}{8}$

11 Work out $2_{9} + 1_{3}$

12 Work out $5_{12} + 1_{4}$

13 Work out $1_{2} - 1_{4}$

14 Work out $1_{3} - 1_{6}$

15 Work out $2_{5} - 1_{5}$

16 Work out $1_{2} - 1_{3}$

17 Work out $3_{4} - 1_{6}$

18 Work out $2_{3} - 1_{4}$

19 Work out $3_{5} - 1_{2}$

20 Work out $5_{8} - 1_{4}$

21 Work out $5_{12} - 1_{4}$

22 Work out $1\,1_{2} + 2\,1_{4}$

23 Work out $2\,1_{3} + 1\,1_{6}$

24 Work out $3\,3_{4} + 1\,1_{2}$

25 Work out $2\,2_{5} + 1\,1_{5}$

26 Work out $1\,5_{6} + 2\,1_{3}$

27 Work out $4\,1_{2} + 2\,3_{8}$

B · Reasoning — Common denominators and common errors.

28 Why must fractions have the same denominator before you add them?

- ☐ To make the numbers smaller
- ☐ So the parts being added are the same size
- ☐ Because the rule says so
- ☐ To simplify the answer

29 Sofia works out 1/2 + 1/3 as 2/5. What has she done wrong?

- ☐ Nothing
- ☐ She added the numerators and the denominators
- ☐ She used the wrong LCM
- ☐ She forgot to simplify

30 What is the quickest check that 1/2 + 1/3 = 2/5 must be wrong?
- ☐ 2/5 is not simplified
- ☐ The answer must be more than 1/2
- ☐ 5 is not a multiple of 2
- ☐ There is no quick check

31 Which denominator should you use for 3/8 + 1/6?
- ☐ 48
- ☐ 24
- ☐ 14
- ☐ 12

32 To add mixed numbers, you may …
- ☐ only convert to improper fractions
- ☐ add the whole parts and the fraction parts separately, or convert to improper fractions
- ☐ add the whole parts only
- ☐ add the fraction parts only

33 Is 2/7 + 3/7 equal to 5/7?
- ☐ Yes
- ☐ No

34 Is 2/7 + 3/7 equal to 5/14?
- ☐ Yes
- ☐ No

35 When subtracting mixed numbers such as 3 1/4 − 1 3/4, what is the safest method?
- ☐ Subtract the fractions first
- ☐ Convert both to improper fractions
- ☐ Subtract the whole numbers only
- ☐ Round them

C · Challenge — Three at once, and missing addends.

36 Work out ¹$_2$ + ¹$_3$ + ¹$_6$

37 Work out ³$_4$ + ⁵$_6$

38 What must be added to ³$_8$ to make 1?

39 What must be added to ²$_5$ to make ⁴$_5$?

40 Work out 1³$_4$ − ⁵$_6$

41 Three pieces of ribbon are ¹$_4$ m, ¹$_3$ m and ¹$_2$ m. What is the total length, in metres?

42 A tank is ²$_3$ full. ¹$_4$ of the tank is used. What fraction is left?

D · Word problems — Lengths, volumes and times.

43 Ana walks ¹$_2$ km then ¹$_4$ km. How far in total, in km?

44 A recipe needs ¹$_3$ cup of milk and ¹$_6$ cup of cream. How much liquid in total, in cups?

45 A jug holds ³$_4$ litre. ¹$_3$ litre is poured out. How much is left, in litres?

46 Two planks measure ²$_3$ m and ³$_4$ m. What is the total length, in metres?

47 A pupil spends ¹$_4$ of an hour reading and ¹$_3$ of an hour writing. What fraction of an hour in total?

48 A bottle holds ⁵$_6$ litre and ¹$_2$ litre is drunk. How much is left, in litres?

49 A field is ⁷$_8$ of a hectare. ¹$_4$ of a hectare is sold. How much is left, in hectares?

50 Two bags weigh 1¹$_4$ kg and ⁷$_8$ kg. What is the total, in kg?