JUNIOR CYCLE MATHS · FREE REVISION SHEET

Fractions

↗ Léim

Learning outcomes (2018 specification): N.1a, N.1b, N.2a. Play the game: **leim.ie/fraction-match.html**

1. Equivalent fractions

Multiply or divide the top and the bottom by the **same** number: 1/2 = 2/4 = 3/6 = 4/8. The pieces get smaller but there are more of them.



Simplest form: divide top and bottom by their HCF. 12/18 → HCF 6 → **2/3**.

2. Mixed numbers

2 1/3 → 2 × 3 + 1 = 7 → **7/3**. Back again: 17/5 → 17 ÷ 5 = 3 rem 2 → **3 2/5**.

3. Comparing

Same bottom first, then compare the tops. 3/4 or 5/8? 3/4 = 6/8, so **3/4** is bigger.

4. Add and subtract

Same bottom: add the tops, keep the bottom. 2/9 + 5/9 = 7/9.

Different bottoms: use the LCM. 1/3 + 1/4 = 4/12 + 3/12 = **7/12**.

Never add the bottoms: 1/2 + 1/3 is not 2/5. It's 3/6 + 2/6 = 5/6.

Mixed numbers: wholes, then fractions. 2 1/3 + 1 3/4 = 3 + 13/12 = **4 1/12**. If a subtraction won't go, use improper fractions: 3 1/5 − 1 3/5 = 16/5 − 8/5 = **1 3/5**.

5. Multiply and divide

×	tops × tops, bottoms × bottoms: 2/3 × 3/5 = 6/15 = 2/5
÷	keep, change, flip: 3/4 ÷ 1/2 = 3/4 × 2/1 = 1 1/2
of	÷ bottom, × top: 3/5 of 40 = 40 ÷ 5 × 3 = 24

Mixed numbers? Change to improper fractions **first**.

Exam tip: show the common denominator (part marks!), finish in simplest form or as a mixed number if asked, and do a sense check: × a fraction less than 1 makes it smaller; ÷ makes it bigger. "2/5 **of what is left**" means of the remainder, not of the start.

PRACTICE · 34 QUESTIONS

Have a go

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A. Pictures and equivalent fractions

1. What fraction of this bar is shaded?



2. What fraction is shaded? Give it in its simplest form.



3. Write 18/24 in its simplest form.
4. Write 35/50 in its simplest form.
5. 3/4 = ?/28. Find the missing number.
6. Write two fractions equal to 2/5.

B. Mixed numbers and comparing

7. Write 23/4 as a mixed number.
8. Write 3 2/7 as an improper fraction.
9. Write 41/6 as a mixed number.
10. Write 4 3/8 as an improper fraction.
11. Which is bigger, 5/6 or 7/9? Show how you know.
12. Put in order, smallest first: 1/2, 3/8, 2/5, 5/12
13. What fraction of an hour is 20 minutes? (simplest form)
14. Write 45 minutes as a fraction of 2 hours.

C. Add and subtract (simplest form or mixed numbers)

15. 2/7 + 3/7 =
16. 1/2 + 1/3 =
17. 3/4 + 1/6 =
18. 5/6 − 1/4 =
19. 7/8 − 2/3 =
20. 1 1/2 + 2 2/3 =
21. 3 1/4 − 1 2/3 =
22. 4 − 1 3/5 =

D. Multiply and divide

23. 2/3 × 3/4 =
24. 5/6 × 9/10 =
25. 3/5 × 10 =
26. 3/4 ÷ 3/8 =
27. 2/3 ÷ 4 =
28. 2 1/2 × 1 1/5 =
29. 3 3/4 ÷ 1 1/4 =
30. 5/8 of 72 =

Questions 31–34 are on the next page.

EXAM-STYLE · THEN CHECK

Exam corner + answers

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E. Exam-style questions (show your work)

31. Cian gets €60 for his birthday. He spends 1/4 of it on a book and 2/5 of what is left on a jersey. How much money has he left?

32. A plank is 4 1/2 m long. How many shelves, each 3/4 m long, can be cut from it?

33. In a class, 2/5 of the students play GAA, 1/3 play soccer and the rest don't play a sport. (a) What fraction don't play a sport? (b) There are 30 students. How many don't play a sport?

34. A recipe for 4 people uses 1 2/3 cups of rice. How much rice is needed for 6 people?

Answers

A	1. 3/8 · 2. 2/5 · 3. 3/4 · 4. 7/10 · 5. 21 · 6. e.g. 4/10, 6/15, 8/20
B	7. 5 3/4 · 8. 23/7 · 9. 6 5/6 · 10. 35/8 · 11. 5/6 (15/18 > 14/18) · 12. 3/8, 2/5, 5/12, 1/2 · 13. 1/3 · 14. 3/8
C	15. 5/7 · 16. 5/6 · 17. 11/12 · 18. 7/12 · 19. 5/24 · 20. 4 1/6 · 21. 1 7/12 · 22. 2 2/5
D	23. 1/2 · 24. 3/4 · 25. 6 · 26. 2 · 27. 1/6 · 28. 3 · 29. 3 · 30. 45
E	31. Book €15, €45 left, jersey €18, so **€27** left · 32. 4 1/2 ÷ 3/4 = 9/2 × 4/3 = **6** shelves · 33. (a) 1 − 6/15 − 5/15 = **4/15** (b) 4/15 of 30 = **8** · 34. 1 2/3 × 6/4 = 5/3 × 3/2 = **2 1/2 cups**

Got one wrong? Check: did you add the bottoms (never!)? Did you flip the second fraction when dividing? Did you change mixed numbers to improper fractions before × and ÷? Then play **Fraction Match** at leim.ie/fraction-match.html: the "Go back over these" list at the end shows the rule for each mistake.

All questions written by Léim. Léim is independent and not connected with the State Examinations Commission or the NCCA.