JUNIOR CYCLE MATHS · FREE REVISION SHEET

Units, time & timetables

↗ Léim

Learning outcomes (2018 specification): GT.1. Play the game: **leim.ie/clock-dash.html**

1. Metric units

Measure	Units
Length	1 km = 1000 m · 1 m = 100 cm · 1 cm = 10 mm
Mass	1 kg = 1000 g · 1 tonne = 1000 kg
Capacity	1 litre = 1000 ml

Big → small: multiply (3.4 km = 3400 m). **Small → big: divide** (250 g = 0.25 kg). Change to the **same unit** before adding, comparing or dividing: 1.2 kg + 350 g = 1200 g + 350 g = 1550 g.

2. The 24-hour clock

am: keep the hour (7:05 am = 07:05; 12:40 am = 00:40). **pm:** add 12 (2:35 pm = 14:35), but 12:30 pm = 12:30. Back again: 13–23, take away 12 and write pm (19:05 = 7:05 pm).

3. Hours are not decimals

An hour has **60** minutes. Minutes → hours: ÷ 60 (45 min = 0.75 h). Decimal hours → minutes: × 60 (0.4 h = 24 min, so 2.4 h = 2 h 24 min, not 2 h 40 min).

4. How long is it? Count on

08:47 → 11:15: 08:47 → 09:00 = 13 min; 09:00 → 11:00 = 2 h; 11:00 → 11:15 = 15 min. Total **2 h 28 min**. Don't take away like ordinary numbers (1115 − 847 = 268 gives "2 h 68 min", which can't be right).

5. Adding time

13:50 + 2 h 35 min: add the hours (15:50), then the minutes (15:50 + 35 min = 16:25). Every 60 minutes makes another hour.

6. Reading a timetable

Each column is one bus; each row is a stop. Read **down** to follow one bus. A dash (—) means it doesn't stop there. For "the latest bus to get there by...", find the last arrival that's early enough, then go up the column.

Other units of time: 60 seconds = 1 minute · 24 hours = 1 day · 7 days = 1 week · 365 days = 1 year (366 in a leap year).

Exam tip: always write the unit in your answer (450 g, not 450). When a question mixes units, change everything to the smaller unit first. Check: a smaller unit means a bigger number.

PRACTICE · 34 QUESTIONS

Have a go

↗ Léim

A. The 24-hour clock

1. Write in 24-hour clock: **4:25 pm** _____
2. Write in 24-hour clock: **9:05 am** _____
3. Write in 24-hour clock: **12:40 am** _____
4. Write in 12-hour clock: **21:15** _____
5. Write in 12-hour clock: **12:30** _____
6. Write in 12-hour clock: **00:05** _____

B. Convert

7. 3.4 km = _____ m
8. 750 g = _____ kg
9. 2.5 l = _____ ml
10. 45 mm = _____ cm
11. 1.25 m = _____ cm
12. 360 ml = _____ l
13. 0.8 t = _____ kg
14. 2500 m = _____ km

C. Time

15. Write 75 minutes in hours, as a decimal. _____
16. Write 2.4 hours in hours and minutes. _____
17. How long is it from 08:47 to 11:15? _____
18. What time is 2 h 35 min after 13:50? _____
19. How many minutes are in 3 h 20 min? _____
20. How many seconds are in 4.5 minutes? _____
21. Write 1.75 hours in hours and minutes. _____
22. A night bus leaves at 22:40 and arrives at 01:15. How long is the journey? _____

D. Timetable: the 207 bus

Stop	Bus 1	Bus 2	Bus 3	Bus 4
Douglas	07:10	07:35	08:05	08:30
Ballinlough	07:21	07:46	—	08:41
South Mall	07:33	07:59	08:22	08:54
Parnell Place	07:40	08:07	08:28	09:02

23. How long does the 07:10 bus take from Douglas to Parnell Place? _____
24. Which bus does not stop at Ballinlough? _____
25. How long does the 08:05 bus take from Douglas to Parnell Place? _____
26. Which bus is quickest from Douglas to Parnell Place? _____
27. You must be at South Mall by 08:00. What is the latest bus you can catch from Douglas? _____
28. You get to the Ballinlough stop at 07:30. How long do you wait for a bus? _____
29. How long does the 08:30 bus take from Ballinlough to South Mall? _____
30. Aoife gets to the Douglas stop at 07:37. How long until the next bus? _____

Questions 31–34 are on the next page.

EXAM-STYLE · THEN CHECK

Exam corner + answers

↗ Léim

E. Exam-style questions (show your work)

31. A train leaves Cork at 06:55 and arrives in Dublin Heuston at 09:28. (a) How long is the journey? (b) One morning it is 17 minutes late. When does it arrive?

32. A wall needs 3.6 litres of paint. Paint comes in 750 ml tins. (a) How many tins must be bought? (b) How much paint is left over?

33. Niamh swims 48 lengths of a 25 m pool in 36 minutes. (a) How far does she swim, in km? (b) Write 36 minutes in hours, as a decimal.

34. A ham needs 40 minutes per kg plus 20 minutes. It weighs 2.25 kg. Dinner is at 19:00. What is the latest time it can go in the oven?

Answers

A	1. 16:25 · 2. 09:05 · 3. 00:40 · 4. 9:15 pm · 5. 12:30 pm · 6. 12:05 am
B	7. 3400 m · 8. 0.75 kg · 9. 2500 ml · 10. 4.5 cm · 11. 125 cm · 12. 0.36 l · 13. 800 kg · 14. 2.5 km
C	15. 1.25 h · 16. 2 h 24 min · 17. 2 h 28 min · 18. 16:25 · 19. 200 · 20. 270 · 21. 1 h 45 min · 22. 2 h 35 min
D	23. 30 min · 24. 08:05 · 25. 23 min · 26. 08:05 · 27. 07:35 · 28. 16 min · 29. 13 min · 30. 28 min
E	31. (a) **2 h 33 min** (b) **09:45** · 32. (a) 3600 ÷ 750 = 4.8, so **5 tins** (b) 5 × 750 = 3750 ml; **150 ml** left · 33. (a) 48 × 25 = 1200 m = **1.2 km** (b) 36 ÷ 60 = **0.6 h** · 34. 40 × 2.25 = 90 min, + 20 = 110 min = 1 h 50 min. 19:00 − 1 h 50 min = **17:10**

Got one wrong? Check: did you divide minutes by 60 (not 100)? Did you count on for time differences? Did you change to the same units first, and multiply when going to a smaller unit? Then play **Clock Dash** at leim.ie/clock-dash.html: the "Go back over these" list at the end shows the rule for each mistake.

All questions and timetables written by Léim (the timetables are made up for practice). Léim is independent and not connected with the State Examinations Commission or the NCCA.