

GCSE Maths: Metric units and time (Higher): answers

GCSE Maths - Units and Compound Measures - Higher - Lesson 16.1

Answers. Final answers to the worksheet questions. Full step-by-step solutions for every question are free at websink.site/gcse/maths/ch16-units-compound-measures/higher/metric-units-and-time/

Exercise 16A Metric units of length, mass and capacity Non-calculator

1 Change each length to the unit shown.

- (a) 3 m to cm

Answer: 300 cm

- (b) 450 cm to m

Answer: 4.5 m

- (c) 2.5 km to m

Answer: 2500 m

- (d) 6000 m to km

Answer: 6 km

- (e) 8 cm to mm

Answer: 80 mm

- (f) 35 mm to cm

Answer: 3.5 cm

2 Change each mass to the unit shown.

- (a) 4 kg to g

Answer: 4000 g

- (b) 3500 g to kg

Answer: 3.5 kg

- (c) 2 tonnes to kg

Answer: 2000 kg

- (d) 7500 kg to tonnes

Answer: 7.5 tonnes

- (e) 0.6 kg to g

Answer: 600 g

- (f) 450 g to kg

Answer: 0.45 kg

3 Change each capacity to the unit shown.

(a) 3 litres to ml

Answer: 3000 ml

(b) 4500 ml to litres

Answer: 4.5 litres

(c) 250 cl to litres

Answer: 2.5 litres

(d) 1.5 litres to cl

Answer: 150 cl

(e) 8 cl to ml

Answer: 80 ml

(f) 90 ml to cl

Answer: 9 cl

4 Write these masses in order of size, largest first: 1.2 kg, 950 g, 1.05 kg, 1100 g.

Answer: 1.2 kg, 1100 g, 1.05 kg, 950 g

5 These need two steps. Change each measurement to the unit shown.

(a) 0.4 km to cm

Answer: 40,000 cm

(b) 0.02 tonnes to g

Answer: 20,000 g

(c) 3 km to mm

Answer: 3,000,000 mm

(d) 5,000,000 mg to kg

Answer: 5 kg

6 A bag of flour has mass 1.5 kg. How many 250 g portions can be made from one bag?

Answer: 6

7 A jug holds 1.2 litres of squash. Each glass holds 150 ml. How many glasses can be filled?

Answer: 8

8 Sam says "3.5 kg is 350 g". Explain what Sam has done wrong and give the correct answer.

Answer: He multiplied by 100 instead of 1000; 3.5 kg = 3500 g

9 A running track is 400 m long. Asha runs 5 laps. How far does she run, in kilometres?

Answer: 2 km

10 Work out 1.4 m + 35 cm + 800 mm. Give your answer in centimetres.

Answer: 255 cm

- 11** Three parcels have masses 1.2 kg, 850 g and 2.05 kg. Work out the total mass in kilograms.
- Answer:** 4.1 kg
- 12** A 3 m length of wood is cut into pieces of length 35 cm. How many whole pieces can be cut, and how much wood is left over?
- Answer:** 8 pieces, 20 cm left over
- 13** A doctor gives 5 ml of medicine at each dose. A bottle holds 0.25 litres. How many doses are in a full bottle?
- Answer:** 50
- 14** Is 0.05 km longer than 5000 cm? Show your working.
- Answer:** No, they are equal (both are 50 m)
- 15** Write an expression, in **grams**, for the mass of n bags of sugar when each bag has mass 0.75 kg.
- Answer:** $750n$ g
- 16** A square has sides of length x centimetres. Show that its perimeter in metres is $x/25$.
- Answer:** Perimeter = $4x$ cm = $4x/100$ m = $x/25$ m
- 17** A tap drips 2 ml of water every 10 seconds. How many litres of water does it waste in one day? Give your answer to 2 decimal places.
- Answer:** 17.28 litres

Exercise 16B Time Non-calculator

- 1** Change each time to the unit shown.

(a) 3 minutes to seconds

Answer: 180 seconds

(b) 2 hours to minutes

Answer: 120 minutes

(c) 180 seconds to minutes

Answer: 3 minutes

(d) 300 minutes to hours

Answer: 5 hours

(e) 5 days to hours

Answer: 120 hours

(f) 3 weeks to days

Answer: 21 days

- 2** Write each time using the 24-hour clock.

(a) 7:30 am

Answer: 07:30

(b) 2:15 pm

Answer: 14:15

(c) 11:40 pm

Answer: 23:40

(d) 12:05 am

Answer: 00:05

(e) 12:30 pm

Answer: 12:30

(f) 9:05 pm

Answer: 21:05

3 Write each time using the 12-hour clock (with am or pm).

(a) 06:45

Answer: 6:45 am

(b) 13:20

Answer: 1:20 pm

(c) 20:05

Answer: 8:05 pm

(d) 00:15

Answer: 12:15 am

(e) 12:50

Answer: 12:50 pm

(f) 23:59

Answer: 11:59 pm

4 Work out the time taken from the start time to the finish time.

(a) 07:15 to 09:40

Answer: 2 hours 25 minutes

(b) 10:50 to 14:25

Answer: 3 hours 35 minutes

(c) 16:35 to 20:10

Answer: 3 hours 35 minutes

(d) 22:20 to 01:05

Answer: 2 hours 45 minutes

5 Work out the finishing time on the 24-hour clock.

- (a) Start 08:30, takes 2 hours 45 minutes

Answer: 11:15

- (b) Start 13:40, takes 1 hour 35 minutes

Answer: 15:15

- (c) Start 18:20, takes 3 hours 50 minutes

Answer: 22:10

- (d) Start 21:45, takes 4 hours 30 minutes

Answer: 02:15 the next day

6 Write each time in hours and minutes.

- (a) 3.5 hours

Answer: 3 hours 30 minutes

- (b) 1.25 hours

Answer: 1 hours 15 minutes

- (c) 2.4 hours

Answer: 2 hours 24 minutes

- (d) 0.75 hours

Answer: 0 hours 45 minutes

7 Write each time as a decimal number of hours.

- (a) 2 hours 30 minutes

Answer: 2.5 hours

- (b) 1 hours 45 minutes

Answer: 1.75 hours

- (c) 3 hours 12 minutes

Answer: 3.2 hours

- (d) 4 hours 6 minutes

Answer: 4.1 hours

8 Here is part of a train timetable.

Station	Time
Bellview	07:48
Corton	08:26
Dunmere	09:05
Eastgate	09:41

Work out the journey time from

(a) Bellview to Eastgate

Answer: 1 hour 53 minutes

(b) Corton to Dunmere

Answer: 39 minutes

(c) Bellview to Corton, and then Corton to Eastgate. Write both answers.

Answer: 38 minutes; 1 hour 15 minutes

9 A film starts at 7:45 pm and lasts 2 hours 25 minutes. At what time does it finish? Give your answer using the 12-hour clock.

Answer: 10:10 pm

10 How many seconds are there in one day?

Answer: 86,400 seconds

11 Jo runs for 50 minutes, 3 times a week. How many hours does she run in 4 weeks?

Answer: 10 hours

12 Ben says "3.4 hours is 3 hours 40 minutes". Is he correct? Explain.

Answer: No. 3.4 hours = 3 hours 24 minutes

13 A night shift starts at 21:45 and finishes at 06:20 the next morning. There is a 35 minute unpaid break. Pay is £9.40 per hour. Work out the pay for the shift.

Answer: £75.20

14 Write an expression, in seconds, for the time taken by a journey of t hours and m minutes.

Answer: $3600t + 60m$ seconds

15 A concert starts at 7:30 pm and finishes at 10:05 pm. An interval of 20 minutes is included. For how many minutes is the music played?

Answer: 135 minutes