

Converting units

Foundation and Higher tiers | Total marks: 109

Marks

- M** Method mark, for a correct method. It can be implied by a correct answer.
- A** Accuracy mark, for a correct answer. It needs the method mark before it.
- B** A mark for a correct value or statement, with or without working.
- ft** Follow through: the mark is given for using an earlier wrong answer correctly.
- oe** Or equivalent.
- [a, b]** Any value from a to b inclusive.

Questions

Q	Skill	Spec	Tier	Grade	Calculator	Marks
1	Choosing metric units	G14	Foundation	1	No	2
2	Metric conversions	N13 R1	Foundation	2	No	3
3	Comparing metric amounts	R1 N13	Foundation	2	No	3
4	Converting units of time	R1 N13	Foundation	2	No	4
5	Mixed units of capacity	R1 N13	Foundation	2	No	3
6	Converting pints to millilitres	R1	Foundation	2	No	3
7	Ordering lengths in different units	N13	Foundation	3	No	2
8	Units of time	N13 G14	Foundation	3	No	3
9	Capacity in context	N13	Foundation	3	No	3
10	Time in hours as a decimal	R1 N13	Foundation	3	No	3
11	Converting seconds	R1	Foundation	3	No	2
12	Converting units in a rate	R1	Foundation	3	No	3
13	Converting lengths to fit an area	G14 R1	Foundation	4	No	3
14	Converting area units	R1 G14	Foundation	4	No	2
15	Volume and capacity units	G14 R1	Foundation	5	No	3
16	Converting a compound unit	R1	Common	5	No	2

Q	Skill	Spec	Tier	Grade	Calculator	Marks
17	Converting units in algebra	R1 A21	Common	5	No	2
18	Mixed metric units in context	N13 R1	Foundation	2	Yes	3
19	Converting lengths in context	N13 R1	Foundation	2	Yes	2
20	Converting between miles and kilometres	R1	Foundation	2	Yes	4
21	Converting a rate of time	R1	Foundation	2	Yes	3
22	Converting lengths to find a cost	R1 R11	Foundation	2	Yes	4
23	Converting units of capacity	R1	Foundation	2	Yes	2
24	Converting between inches and centimetres	R1	Foundation	2	Yes	4
25	Converting a length to kilometres	R1 N13	Foundation	2	Yes	2
26	Mass units both ways	R1 N13	Foundation	2	Yes	4
27	Converting ounces to grams	R1	Foundation	2	Yes	4
28	Converting with a given rate	R1 N13	Foundation	3	Yes	3
29	Imperial units in two steps	R1	Foundation	3	Yes	3
30	Converting gallons to find a cost	R1 R11	Foundation	3	Yes	3
31	Tonnes and kilograms	R1 N13	Foundation	3	Yes	3
32	Converting minutes to hours	R1	Foundation	3	Yes	4
33	Converting cups to millilitres	R1	Foundation	3	Yes	3
34	Converting units of capacity	R1	Foundation	3	Yes	3
35	Converting time in a rate	R1 R11	Foundation	3	Yes	3
36	Rates with a chain of units	N13 R1	Foundation	4	Yes	3
37	Converting a speed	R1	Foundation	5	Yes	3
	Total					109

Question 1 G14 · Foundation · Grade 1 · 2 marks

Q	Answer	Mark	Comments
1(a)	grams or g	B1	
1(b)	millilitres or ml	B1	accept cl or litres

Question 2 N13 R1 · Foundation · Grade 2 · 3 marks

Q	Answer	Mark	Comments
2(a)	4500	B1	
2(b)	0.35	B1	
2(c)	2.3	B1	

Question 3 R1 N13 · Foundation · Grade 2 · 3 marks

Q	Answer	Mark	Comments
3(a)	150 g	B1	
3(b)	2.5 km = 2500 m	M1	or 2050 m = 2.05 km
	2.5 km and 450	A1	

Question 4 R1 N13 · Foundation · Grade 2 · 4 marks

Q	Answer	Mark	Comments
4(a)	160	B1	
4(b)	1 hour 45 minutes	B1	
4(c)	900	B1	
4(d)	168	B1	

Question 5 R1 N13 · Foundation · Grade 2 · 3 marks

Q	Answer	Mark	Comments
5	2 litres = 2000 ml or 0.6 litres = 600 ml	M1	or 350 ml = 0.35 litres
	2000 – 350 – 600	M1	oe, in one unit
	1050	A1	

Question 6 R1 · Foundation · Grade 2 · 3 marks

Q	Answer	Mark	Comments
6	4×568 or 2272	M1	oe
	5×275 or 1375	M1	oe
	897	A1	

Question 7 N13 · Foundation · Grade 3 · 2 marks

Q	Answer	Mark	Comments
7	0.0004 km, 405 mm, 42 cm, 0.45 m	B2	B1 for three in the correct order, or all four in the same unit

Question 8 N13 G14 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
8(a)	22:10	B1	accept 10:10 pm
8(b)	0.2×60 or 12 or $3.2 \times 60 = 192$	M1	
	No and 3 hours 12 minutes	A1	oe, or 192 and 200 minutes compared

Question 9 N13 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
9	6×750 or 4500	M1	
	$4500 \div 200$ or 22.5	M1	oe
	22	A1	

Question 10 R1 N13 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
10	105×3 or 315	M1	oe, or 3 hours 135 minutes, or 1.75 hours
	$315 \div 60$	M1	oe, or 5 hours 15 minutes
	5.25	A1	

Question 11 R1 · Foundation · Grade 3 · 2 marks

Q	Answer	Mark	Comments
11	$4053 \div 60$ or 67.55 or $4053 - 3600$ or 453	M1	oe, or 67 minutes
	1 hour 7 minutes 33 seconds	A1	

Question 12 R1 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
12	$1.3 \times 60 \times 60$ or 4680	M1	oe, the millimetres in one hour
	their $4680 \div 1000$	M1	oe
	4.68	A1	

Question 13 G14 R1 · Foundation · Grade 4 · 3 marks

Q	Answer	Mark	Comments
13	$420 \div 30$ or 14 or $300 \div 30$ or 10	M1	oe, the same units used, or 4.2×3 and 0.3×0.3
	14×10	M1	oe, or $12.6 \div 0.09$
	140	A1	

Question 14 R1 G14 · Foundation · Grade 4 · 2 marks

Q	Answer	Mark	Comments
14	100×100 or 10 000	M1	oe, the number of cm^2 in 1 m^2
	No and 24 000	A1	

Question 15 G14 R1 · Foundation · Grade 5 · 3 marks

Q	Answer	Mark	Comments
15	$1.2 \text{ m} = 120 \text{ cm}$	M1	or $50 \text{ cm} = 0.5 \text{ m}$ and $40 \text{ cm} = 0.4 \text{ m}$
	$120 \times 50 \times 40$ or 240 000	M1	oe, or 0.24 m^3
	240	A1	

Question 16 R1 · Common · Grade 5 · 2 marks

Q	Answer	Mark	Comments
16	$1 \text{ m}^3 = 1\,000\,000 \text{ cm}^3$ or $2.7 \times 1\,000\,000 \div 1000$	M1	oe
	2700	A1	

Question 17 R1 A21 · Common · Grade 5 · 2 marks

Q	Answer	Mark	Comments
17	$\frac{x}{y}$ or $\frac{y}{60}$	M1	oe, km per minute or the time in hours
	$\frac{60x}{y}$	A1	oe

Question 18 N13 R1 · Foundation · Grade 2 · 3 marks

Q	Answer	Mark	Comments
18	7×238 or 1666	M1	oe, or 1.666 kg
	$1666 + 360$ or $1.666 + 0.36$	M1	oe, the books and the box in the same units
	No with 2026 g or 2.026 kg	A1	

Question 19 N13 R1 · Foundation · Grade 2 · 2 marks

Q	Answer	Mark	Comments
19	64×2350 or 150 400	M1	oe, or $0.64 \times 2350 = 1504$
	1.504	A1	

Question 20 R1 · Foundation · Grade 2 · 4 marks

Q	Answer	Mark	Comments
20(a)	37.5×1.609	M1	oe
	60.3	A1	accept 60.3 or [60.33, 60.34]
20(b)	$50 \div 1.609$	M1	oe
	31.1	A1	accept 31.1 or [31.07, 31.08]

Question 21 R1 · Foundation · Grade 2 · 3 marks

Q	Answer	Mark	Comments
21(a)	$72 \times 60 \times 24$	M1	oe, or 4320 beats in an hour
	103 680	A1	
21(b)	1.2	B1	oe

Question 22 R1 R11 · Foundation · Grade 2 · 4 marks

Q	Answer	Mark	Comments
22(a)	2.4×8.49	M1	oe
	£20.38	A1	accept 20.376
22(b)	$275 \div 10$ or 27.5	M1	oe, the number of 10 cm lengths, or 340p per metre
	£9.35	A1	accept 935p

Question 23 R1 · Foundation · Grade 2 · 2 marks

Q	Answer	Mark	Comments
23	$1750 \div 6$	M1	oe, or $1.75 \div 6 = 0.291...$
	292	A1	accept [291.6, 291.7]

Question 24 R1 · Foundation · Grade 2 · 4 marks

Q	Answer	Mark	Comments
24	6×2.54 or 4×2.54	M1	oe
	15.24 and 10.16	A1	
	$30 \div 2.54$ or $40 \div 2.54$	M1	oe
	11.8 and 15.7	A1	accept [11.81, 11.82] and [15.74, 15.75]

Question 25 R1 N13 · Foundation · Grade 2 · 2 marks

Q	Answer	Mark	Comments
25	33.3×48 or 1598.4	M1	oe
	1.60	A1	accept 1.6 or [1.598, 1.599]

Question 26 R1 N13 · Foundation · Grade 2 · 4 marks

Q	Answer	Mark	Comments
26(a)	400×8.75 or 3500	M1	oe
	3.5	A1	
26(b)	$1400 \div 8.75$	M1	oe
	£160	A1	

Question 27 R1 · Foundation · Grade 2 · 4 marks

Q	Answer	Mark	Comments
27(a)	8×28.35	M1	oe
	227	A1	accept 226.8
27(b)	4×28.35 or 113.4	M1	oe
	137	A1	accept 136.6

Question 28 R1 N13 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
28	$49 \div 2.2$	M1	or 23×2.2
	22.27...	A1	or 50.6
	Yes with 22.27... kg or 50.6 pounds	A1	

Question 29 R1 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
29	$13 \times 14 + 4$ or 186	M1	oe, or $13 \times 14 \times 0.454 = 82.6...$
	their 186×0.454	M1	oe
	84.4	A1	accept 84.4 or [84.44, 84.45]

Question 30 R1 R11 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
30	12×4.546 or 54.552	M1	oe
	their 54.552×142.9 or their 54.552×1.429	M1	oe
	£77.95	A1	accept 7795p

Question 31 R1 N13 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
31	46×26.5 or 1219	M1	oe
	1.2 tonnes = 1200 kg	M1	or 1219 kg = 1.219 tonnes
	No with 1219 kg and 1200 kg	A1	or 1.219 tonnes and 1.2 tonnes

Question 32 R1 · Foundation · Grade 3 · 4 marks

Q	Answer	Mark	Comments
32(a)	$1735 \div 60$ or 28.9... or $28 \times 60 = 1680$	M1	oe
	28 hours 55 minutes	A1	
32(b)	$1735 \div 7$ or 247.8... or $4 \times 60 \times 7$ or 1680 or 28 hours	M1	oe
	No with 247.8... and 240 minutes compared	A1	or 1735 and 1680 minutes, or 28 hours 55 minutes and 28 hours

Question 33 R1 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
33	2.5×236.6	M1	oe, or $500 \div 236.6 = 2.11...$
	591.5	A1	
	No and 91.5 ml	A1	oe

Question 34 R1 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
34	0.2 litres = 200 ml	M1	oe
	$200 \div (3 \times 7.5)$ or $200 \div 22.5$ or 8.8...	M1	oe, or $200 \div 7.5 = 26.6...$ doses
	8	A1	

Question 35 R1 R11 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
35	$500 \div 48$ or 10.41...	M1	oe, or $60 \div 48 = 1.25$ seconds a page
	$0.41... \times 60$ or 25, or $500 \times 1.25 = 625$ seconds	M1	oe
	10 minutes 25 seconds	A1	

Question 36 N13 R1 · Foundation · Grade 4 · 3 marks

Q	Answer	Mark	Comments
36	$7 \times 24 \times 60 \times 60$ or 604 800	M1	the seconds in a week, or 0.3 ml a second, or 25 920 ml a day
	$604\,800 \div 10 \times 3$ or 181 440	M1	oe, the millilitres in a week
	181	A1	

Question 37 R1 · Foundation · Grade 5 · 3 marks

Q	Answer	Mark	Comments
37	$12 \times 60 \times 60$ or 43 200	M1	oe, or 40×1000 or 40 000
	$43\,200 \div 1000$ or 43.2	M1	oe, or $40\,000 \div 3600$ or 11.1...
	cyclist with 43.2 km/h	A1	or with 11.1... m/s