

Fractions

Foundation and Higher tiers

Total marks: 71

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	Fraction of a shape, in its simplest form	N8	Foundation	2	No	2
2	Fraction of an amount, and the reverse	N12	Foundation	3	No	4
3	Comparing fractions and decimals	N1 N10	Foundation	3	No	2
4	Fractions and terminating decimals	N10	Foundation	3	No	2
5	Subtracting mixed numbers	N8 N2	Foundation	4	No	3
6	Multiplying mixed numbers: spot the error	N8 N2	Foundation	4	No	3
7	Dividing fractions in context	N8 N2	Foundation	5	No	4
8	Fraction of the rest, working backwards	N12	Foundation	5	No	4
9	The fraction halfway between two fractions	N8 N1	Foundation	5	No	2
10	Fractions and terminating decimals: is the claim true	N10	Foundation	5	No	2
11	Missing number in a fraction sum	N8	Foundation	5	No	2
12	Dividing with mixed numbers: width from the area	N8 N2	Foundation	5	No	3
13	Recurring decimal to a fraction: show that	N10	Higher	7	No	3
14	Rainfall as a fraction of another year	R3	Foundation	3	Yes	3
15	Which fraction is closest to a decimal	N10 N1	Foundation	4	Yes	2
16	Comparing fractions of amounts	N12	Foundation	4	Yes	3

Q	Skill	Spec	Tier	Grade	Calculator	Marks
17	Fractions of an amount, in hours and minutes	N12 N8	Foundation	4	Yes	3
18	A fraction of a quantity, then the cost	N12	Foundation	4	Yes	3
19	Multiplying mixed numbers in context	N8 N2 G16	Foundation	4	Yes	4
20	Inverse operations with mixed numbers	N8 N2	Foundation	4	Yes	4
21	Fractions of amounts in several steps	N12	Foundation	5	Yes	4
22	Working backwards from a fraction left	N12 N8	Foundation	5	Yes	4
23	A fraction increase then a fraction decrease	N12	Foundation	5	Yes	3
24	A fraction between a fraction and a decimal	N10 N1	Foundation	5	Yes	2
	Total					71

Question 1 N8 · Foundation · Grade 2 · 2 marks

Q	Answer	Mark	Comments
1	$\frac{12}{20}$	M1	oe, such as $\frac{6}{10}$
	$\frac{3}{5}$	A1	

Question 2 N12 · Foundation · Grade 3 · 4 marks

Q	Answer	Mark	Comments
2(a)	$56 \div 8$ or 7	M1	oe
	21	A1	
2(b)	$18 \div 2$ or 9	M1	oe, or $18 \times \frac{5}{2}$
	45	A1	

Question 3 N1 N10 · Foundation · Grade 3 · 2 marks

Q	Answer	Mark	Comments
3	$\frac{5}{8} > 0.6$, $\frac{2}{3} < 0.67$, $\frac{9}{12} = 0.75$	B2	B1 for two correct

Question 4 N10 · Foundation · Grade 3 · 2 marks

Q	Answer	Mark	Comments
4(a)	0.875	B1	
4(b)	$2\frac{3}{20}$	B1	must be a mixed number

Question 5 N8 N2 · Foundation · Grade 4 · 3 marks

Q	Answer	Mark	Comments
5	$\frac{13}{4}$ and $\frac{11}{6}$	M1	or $3\frac{3}{12}$ and $1\frac{10}{12}$
	$\frac{39}{12} - \frac{22}{12}$ or $\frac{17}{12}$	M1	oe, a common denominator with both numerators correct
	$1\frac{5}{12}$	A1	

Question 6 N8 N2 · Foundation · Grade 4 · 3 marks

Q	Answer	Mark	Comments
6(a)	He has not multiplied each part by each part	B1	oe, such as he should change to improper fractions first, or he has missed $1 \times \frac{1}{3}$ and $\frac{1}{2} \times 2$
6(b)	$\frac{3}{2} \times \frac{7}{3}$	M1	oe, or $2 + \frac{1}{3} + 1 + \frac{1}{6}$
	$3\frac{1}{2}$	A1	oe, such as $\frac{7}{2}$ or $\frac{21}{6}$

Question 7 N8 N2 · Foundation · Grade 5 · 4 marks

Q	Answer	Mark	Comments
7(a)	$\frac{9}{4} \div \frac{3}{10}$	M1	oe, or repeated subtraction of $\frac{3}{10}$
	$\frac{90}{12}$ or 7.5	M1	oe, such as $7\frac{1}{2}$
	7	A1	
7(b)	$\frac{3}{20}$	B1ft	oe, ft $\frac{9}{4} - \frac{3}{10} \times$ their (a)

Question 8 N12 · Foundation · Grade 5 · 4 marks

Q	Answer	Mark	Comments
8	$1 - \frac{1}{4}$ or $\frac{3}{4}$	M1	oe
	$\frac{3}{5} \times \frac{3}{4}$ or $\frac{9}{20}$	M1	oe, the fraction that is non-fiction. Or $\frac{2}{5} \times \frac{3}{4} = \frac{3}{10}$ for novels
	$540 \div 9 \times 20$	M1	oe, ft their fraction
	1200	A1	

Question 9 N8 N1 · Foundation · Grade 5 · 2 marks

Q	Answer	Mark	Comments
9	$(\frac{2}{5} + \frac{3}{4}) \div 2$ or $\frac{16}{40}$ and $\frac{30}{40}$	M1	oe, or $\frac{23}{20} \div 2$
	$\frac{23}{40}$	A1	oe

Question 10 N10 · Foundation · Grade 5 · 2 marks

Q	Answer	Mark	Comments
10	$\frac{21}{28} = \frac{3}{4}$ or 0.75	B1	oe, simplifies or converts correctly
	No, as $\frac{21}{28} = \frac{3}{4} = 0.75$	B1	oe, a correct terminating decimal for $\frac{21}{28}$ or $\frac{3}{4}$

Question 11 N8 · Foundation · Grade 5 · 2 marks

Q	Answer	Mark	Comments
11	$\frac{11}{36} - \frac{1}{4}$ or $\frac{2}{36}$	M1	oe, such as $\frac{1}{18}$
	18	A1	

Question 12 N8 N2 · Foundation · Grade 5 · 3 marks

Q	Answer	Mark	Comments
12	$9 \div 3 \frac{3}{4}$ or $9 \div \frac{15}{4}$	M1	oe
	$9 \times \frac{4}{15}$ or $\frac{36}{15}$	M1	oe
	$2 \frac{2}{5}$	A1	must be a mixed number

Question 13 N10 · Higher · Grade 7 · 3 marks

Q	Answer	Mark	Comments
13	$x = 0.1555\ldots$ and $10x = 1.555\ldots$ or $100x = 15.555\ldots$	M1	two recurring decimals with the same recurring part
	$90x = 14$ or $9x = 1.4$	M1	oe, a correct subtraction
	$x = \frac{14}{90} = \frac{7}{45}$	A1	a full method with no errors

Question 14 R3 · Foundation · Grade 3 · 3 marks

Q	Answer	Mark	Comments
14(a)	$\frac{945}{735}$	M1	oe, such as $\frac{189}{147}$ or $\frac{63}{49}$
	$\frac{9}{7}$ or $1 \frac{2}{7}$	A1	$\frac{7}{9}$ scores M0 A0
14(b)	$\frac{1}{15}$	B1	

Question 15 N10 N1 · Foundation · Grade 4 · 2 marks

Q	Answer	Mark	Comments
15	two of 0.611..., 0.586... and 0.605...	M1	or differences from 0.6 of 0.011..., 0.013... and 0.005...
	$\frac{23}{38}$ with all three decimals	A1	

Question 16 N12 · Foundation · Grade 4 · 3 marks

Q	Answer	Mark	Comments
16	$86.40 \div 12 \times 5$ or £36.00	M1	oe
	$84.35 \div 7 \times 3$ or £36.15	M1	oe
	No with £36.00 and £36.15	A1	

Question 17 N12 N8 · Foundation · Grade 4 · 3 marks

Q	Answer	Mark	Comments
17	$1 - \frac{2}{15} - \frac{3}{10}$ or $\frac{17}{30}$	M1	oe, or 5 hours and 11.25 hours
	$\frac{17}{30} \times 37.5$ or 21.25	M1	oe, or $37.5 - 5 - 11.25$
	21 hours 15 minutes	A1	

Question 18 N12 · Foundation · Grade 4 · 3 marks

Q	Answer	Mark	Comments
18	$\frac{5}{8} \times 54$ or 33.75	M1	oe, or $54 - 20.25$
	their 33.75×147.9 or 4991.6...	M1	oe, such as 33.75×1.479
	£49.92	A1	or 4992p

Question 19 N8 N2 G16 · Foundation · Grade 4 · 4 marks

Q	Answer	Mark	Comments
19	$12\frac{3}{4} \times 8\frac{2}{5}$ or 107.1	M1	oe, such as $\frac{51}{4} \times \frac{42}{5}$
	rounds their area up to the next whole number, 108	M1	
	their 108×4.85	M1	or $107.1 \times 4.85 = 519.43...$
	£523.80	A1	

Question 20 N8 N2 · Foundation · Grade 4 · 4 marks

Q	Answer	Mark	Comments
20(a)	$9\frac{1}{10} \div 2\frac{3}{5}$	M1	oe, such as $9.1 \div 2.6$
	$3\frac{1}{2}$	A1	a mixed number: 3.5 or $\frac{7}{2}$ scores M1 A0
20(b)	$4\frac{3}{10} \times 1\frac{2}{3}$	M1	oe, such as $\frac{43}{10} \times \frac{5}{3}$
	$7\frac{1}{6}$	A1	a mixed number: $\frac{43}{6}$ or 7.16... scores M1 A0

Question 21 N12 · Foundation · Grade 5 · 4 marks

Q	Answer	Mark	Comments
21	$\frac{5}{9} \times 2340$ or 1300	M1	oe
	$\frac{3}{8} \times 1300$ or 487.5 or $\frac{5}{8} \times 1300$ or 812.5	M1	oe, ft their 1300
	$2340 - 812.5$ or $1040 + 487.5$	M1	oe, a full method
	1527.5	A1	

Question 22 N12 N8 · Foundation · Grade 5 · 4 marks

Q	Answer	Mark	Comments
22	$\frac{3}{8} + \frac{2}{5}$ or $\frac{31}{40}$	M1	oe
	$1 - \frac{31}{40}$ or $\frac{9}{40}$	M1	oe, the fraction spent on the tent
	$46.35 \div 9 \times 40$	M1	oe, ft their $\frac{9}{40}$
	£206.00	A1	

Question 23 N12 · Foundation · Grade 5 · 3 marks

Q	Answer	Mark	Comments
23	$374.40 \div 6 \times 7$ or £436.80	M1	oe
	their $£436.80 \div 5 \times 4$ or £349.44	M1	oe
	Yes with £349.44	A1	

Question 24 N10 N1 · Foundation · Grade 5 · 2 marks

Q	Answer	Mark	Comments
24	$\frac{2}{7} = 0.285\dots$ and $7 \div 23 = 0.304\dots$	M1	oe, or $23 \times \frac{2}{7} = 6.57\dots$ and $23 \times 0.31 = 7.13$
	$\frac{7}{23}$	A1	