

YEAR 7 • MATHEMATICS • NUMBER AND ALGEBRA

WA CURRICULUM (SCSA) • UNDERSTANDING NUMBER

Fractions, Decimals and Percentages — Marking Key

Relationships between fractions, decimals and percentages, including calculator strategies.

WA7MNAUN2

SECTION A	SECTION B	SECTION C	SECTION D	SECTION E	TOTAL
18	28	19	22	13	100

How to use this key. The figure beside each question number is the total for that question; the right-hand column gives the marks for each part. Award **follow-through** marks where a later part is answered correctly using an earlier incorrect answer. Accept any equivalent correct form unless a note says otherwise. Notes marked ► give acceptable alternatives and the errors to watch for.

Answers and mark allocation 100 MARKS

Questions 1–25

1 4	(a)	65%	1
	(b)	$\frac{65}{100}$	1
	(c)	0.65	1
	(d)	$\frac{13}{20}$	1
	► ÷5. The chain at the foot of the question is follow-through and is not marked again.		
2 3	(A)	40%, 0.4, $\frac{2}{5}$	1
	► All three forms needed for the mark, in each row.		
	(B)	8%, 0.08, $\frac{2}{25}$	1
	► Watch for 0.8 instead of 0.08.		
	(C)	75%, 0.75, $\frac{3}{4}$	1
3 4	(a)	0.25 at the quarter point, $\frac{1}{2}$ at the middle, 70% at the 7th tick, $\frac{9}{10}$ at the 9th	2
	► 2 marks for all four; 1 mark for two or three.		
	(b)	25%; 0.5; 0.7; 90%	2
	► 2 marks for all four; 1 mark for two or three.		

4 4	(a)	175%	1
	(b)	1.75	1
	(c)	$1\frac{3}{4}$	1
	(d)	$\frac{7}{4}$	1
▶ Accept $1\frac{3}{4}$ for (c) and $\frac{7}{4}$ for (d) interchanged only if both are present.			
5 3	(—)	30 squares	1
	(—)	45 squares	1
	(—)	60 squares	1
	▶ Three fifths = $\frac{60}{100} = 60\%$.		
6 5	(row 1)	$\frac{1}{2}$ 0.5 50%	1
	▶ 1 mark per completed row for the first four rows.		
	(row 2)	$\frac{1}{4}$ 0.25 25%	1
	(row 3)	$\frac{3}{5}$ 0.6 60%	1
	(row 4)	$\frac{7}{20}$ 0.35 35%	1
	(rows 5–6)	$\frac{9}{25}$ 0.36 36% and $\frac{1}{8}$ 0.125 12.5%	1
▶ 1 mark for both of the last two rows. Fractions must be in simplest form.			
7 4	(a)	$\frac{13}{20}$	1
	(b)	$\frac{6}{25}$	1
	(c)	$\frac{2}{25}$	1
	▶ Watch for $\frac{8}{10}$.		
	(d & e)	$\frac{3}{2}$ or $1\frac{1}{2}$, and $\frac{1}{8}$	1
▶ 1 mark for both. $12.5\% = \frac{125}{1000} = \frac{1}{8}$.			

8 4	(a)	30%	1
	(b)	7%	1
	(c)	12.5%	1
	(d & e)	140% and 62.5% ▶ 1 mark for both.	1
9 4	(a)	0.45	1
	(b)	0.06 ▶ Watch for 0.6.	1
	(c)	1.2	1
	(d & e)	0.025 and 0.005 ▶ 1 mark for both. These two separate secure understanding from rule-following.	1
10 4	(a)	$\frac{75}{100} = 75\%$	1
	(b)	$\frac{35}{100} = 35\%$	1
	(c)	$\frac{52}{100} = 52\%$	1
	(d)	$\frac{18}{100} = 18\%$ ▶ The equivalent fraction must be shown — the question asks for that method.	1
11 4	(a)	$0.375 = 37.5\%$	1
	(b)	$0.3125 = 31.25\%$	1
	(c)	$0.333... = 33.3\%$ ▶ Accept 33.3% or $33\frac{1}{3}\%$.	1
	(d)	$0.666... = 66.7\%$ ▶ Accept 66.7% or $66\frac{2}{3}\%$. Do not accept 66.6%.	1
12 3	(a)	False — 0.8 is 8 tenths = 80%; 8% is 0.08 ▶ Verdict and reason both required.	1
	(b)	True — $\frac{1}{5} = \frac{20}{100}$	1
	(c & d)	Both true — 0.05 is 5 hundredths; $25\% = \frac{25}{100} = \frac{1}{4}$ ▶ 1 mark for both.	1

13	(a)	$< (0.6 = 60\%)$	1
5	(b)	$= (\text{both } 0.6)$	1
	(c)	$> (\frac{7}{8} = 87.5\%)$	1
	(d)	$= (\text{both } 0.45)$	1
	(e)	$< (\frac{2}{3} = 66.7\%)$	1
		▶ A student who rounds to 67% and writes “=” has not compared carefully enough; no mark.	

14	(—)	Converting all five to percentages (or all to decimals)	1
3		▶ Award even if the order that follows is wrong.	
	(—)	$\frac{13}{20}$ (65%), 68%, 0.7 (70%), 0.72 (72%), $\frac{3}{4}$ (75%)	2
		▶ 2 marks for the full correct order; 1 mark if exactly two are transposed.	

15	(a)	0.51	2
4		▶ 1 mark for converting all four to one form (45%, 48%, 52%, 51%), 1 for the answer.	
	(b)	88%	2
		▶ 1 mark for $\frac{7}{8} = 87.5\%$, 1 for the answer.	

16	(a)	85%, 82%, 86%	2
4		▶ 2 marks for all three; 1 mark for two.	
	(b)	English	1
		▶ Follow-through from (a).	
	(c)	Yes — $\frac{4}{5} = 80\%$ and $85\% > 80\%$	1
		▶ The comparison with 80% must be explicit.	

17	(a)	A 25%, B 20%, C 30%	1
3		▶ All three needed.	
	(b)	Shop C	1
	(c)	\$56	1
		▶ 30% of \$80 = \$24; \$80 – \$24 = \$56. Accept $0.7 \times \$80$.	

18 4	(—)	Blanks: 100; 65; $\frac{65}{100}$; 0.65; 5	1
		► All five needed.	
	(—)	Own explanation of $40\% = 0.4 = \frac{2}{5}$: 40 of the 100 small squares, so $\frac{40}{100}$; four tenths, so 0.4; grouped in fives, 8 groups of 20, so $\frac{2}{5}$	3
		► 1 mark for linking per cent to hundredths, 1 for the decimal by place value, 1 for simplifying. A diagram may support the words but does not replace them.	
19 4	(a)	$100\% = 1$ whole (first square) and $75\% = 0.75 = \frac{3}{4}$ (second), so $1 + 0.75 = 1.75 = 1\frac{3}{4}$	2
		► 1 mark for identifying the whole square as $100\% = 1$, 1 for combining the two parts.	
	(b)	2.5 and $2\frac{1}{2}$	1
		► Both needed.	
	(c)	2.2 and 220%	1
		► Both needed.	
20 4	(a)	0.8 is 8 <i>tenths</i> , so $0.8 = 80\%$; 8% would be 0.08	1
		► Must identify the place-value error, not merely give 80%.	
	(b)	The bar means divide, so $\frac{1}{5} = 1 \div 5 = 0.2$	1
		► Must identify that she read the bar as a decimal point.	
	(c)	100% is one whole, and amounts above one whole do occur — e.g. a \$20 item rising to 150% of its price costs \$30, and $150\% = 1.5$	2
		► 1 mark for explaining that $100\% = 1$ whole, 1 for a sensible example above 100%. Accept any real context: prices, populations, interest.	
21 5	(a)	Ali and Cam	1
		► Both names needed.	
	(b)	She divided the wrong way round — it must be $7 \div 8$, the numerator by the denominator	1
		► Award a second look if the student also notes that an answer above 100% is impossible for $\frac{7}{8}$, which is sound reasoning.	
	(c)	56.25%	1
		► $9 \div 16 = 0.5625$.	
	(d)	$\frac{5}{8} = 0.625 = 62.5\%$, so more than 60%	2
		► 1 mark for a prediction recorded <i>before</i> checking, 1 for the correct calculator result and a statement of whether the prediction held. A correct answer with no prediction earns 1 mark only — predicting is the skill being assessed.	

22 5	(a) Sometimes — true for part of a whole (35%), false above one whole (175%) ▶ 1 mark for the verdict, 1 for the justification.	2
	(b) Always — multiplying by 100 shifts every digit two places; e.g. 0.625 → 62.5%	1
	(c) Never — thirds recur, e.g. $\frac{1}{3} = 0.333\dots$, because 3 divides no power of 10 ▶ 1 mark for the verdict, 1 for a reason referring to recurring decimals or to factors of 10.	2
23 3	(a) 0.65 and 65%	1
	(b) $\frac{1}{25}$ and 4%	1
	(c & d) $\frac{11}{4}$ (or $2\frac{3}{4}$) and 2.75; then 0.3125 and 31.25% ▶ 1 mark for both chains.	1
24 5	(a) 63 students ▶ 35% of 180.	1
	(b) 45 students ▶ $\frac{1}{4}$ of 180.	1
	(c) 36 students ▶ 0.2 of 180.	1
	(d) 20%, which is 36 students ▶ 1 mark for 20% ($100 - 35 - 25 - 20$), 1 for 36 students. Check $63 + 45 + 36 + 36 = 180$.	2
25 5	(a) \$150 ▶ $0.6 \times \$250$.	1
	(b) \$112.50 ▶ $0.75 \times \$150$. Follow-through from (a).	1
	(c) No — \$112.50 is 45% of \$250, so the total discount is 55%, not 65%. The second discount is taken off the reduced price, not the original ▶ 1 mark for rejecting 65%, 1 for explaining that the second discount applies to the already-reduced price. This is the key idea of the question; a correct number with no explanation earns 1 mark.	2
	(d) 55% ▶ $0.6 \times 0.75 = 0.45$, and $100\% - 45\% = 55\%$.	1