

WA7MNAUN7

Understanding number

Core + Challenge

Rounding Decimals — Marking Key

I can use place value to round decimals to a given number of decimal places and explain my rounding.

For tutors and parents. Award method marks for correct working even if the final answer is wrong.

Marks summary

Section A Fluency: 16 Section B Core: 22 Section C Reasoning: 9 Section D Challenge: 10 **Total: 57**

Fluency: 1 mark each; accept an equivalent unsimplified answer for half credit at tutor's discretion.

A Fluency *answers and working*

/ 16 marks

Q	Answer	Working
1	3.6	next digit is 4 → keep → 3.6
2	7.9	next digit is 5 → round up → 7.9
3	12.0	next digit is 4 → keep → 12.0
4	1.0	next digit is 6 → round up → 1.0
5	5.68	next digit is 8 → round up → 5.68
6	0.43	next digit is 4 → keep → 0.43
7	10.00	next digit is 5 → round up → 10.00
8	3.14	next digit is 1 → keep → 3.14
9	1.625	next digit is 8 → round up → 1.625
10	1.627	next digit is 3 → keep → 1.627
11	0.001	next digit is 6 → round up → 0.001
12	2.346	next digit is 6 → round up → 2.346
13	19	next digit is 5 → round up → 19
14	99	next digit is 4 → keep → 99
15	0.0	next digit is 4 → keep → 0.0
16	7.00	next digit is 5 → round up → 7.00

Rounding Decimals · WA7MNAUN7

B

Core *answers, working and marks*

/ 22 marks

Q	Answer	Working / sample response	Marks
1	(a) 3.14 (b) 3.143	Next digits: 2 (keep), then 8 (round up) <i>1 mark each</i>	2
2	\$47.87	Third decimal place is 7 → round up <i>1 mark: working</i> <i>1 mark: \$47.87</i>	2
3	(a) 12.5 (b) 12.46	12.456 → 12.5 (next digit 5); 12.46 (next digit 6) <i>1 mark each</i>	2
4	4.65 and 4.74	Anything from 4.65 up to 4.74 rounds to 4.7 <i>1 mark each</i>	2
5	(a) \$33.33 (b) \$0.01	$100 \div 3 = 33.333\dots$ $3 \times 33.33 = 99.99$; $100 - 99.99 = 0.01$ <i>1 mark: \$33.33</i> <i>1 mark: 99.99</i> <i>1 mark: 1 cent</i>	3
6	3.00	The 6 rounds the 9s up: $2.996 \rightarrow 3.00$. The zeros show it is accurate to hundredths. <i>1 mark: 3.00</i> <i>1 mark: explanation</i>	2
7	1.67 m	Nearest cm = 2 d.p.; next digit 4 → keep <i>1 mark: 2 d.p.</i> <i>1 mark: 1.67 m</i>	2
8	3.6	3.64 is 0.04 above 3.6 but 0.06 below 3.7 <i>1 mark: both distances</i> <i>1 mark: 3.6</i>	2
9	(a) \$2.50 (b) \$99.80	$2.495 \rightarrow 2.50$; $2.495 \times 40 = 99.80$ <i>1 mark each</i>	2
10	(a) 7.4, 7.456, 7.46 (b) 7.4, 7.5, 7.5 – two different jumps look equal	$7.400 < 7.456 < 7.460$ <i>1 mark: order</i> <i>1 mark: rounded values</i> <i>1 mark: observation</i>	3

C

Reasoning *sample answers and marking criteria*

/ 9 marks

Q	Answer	Working / sample response	Marks
1	Next digit 5 vs 4	The digit after the third decimal place is 5 (round up) in the first and 4 (keep) in the second. <i>2 marks: explanation</i>	2
2	4.4	Rounding twice is wrong. From the original, the digit after the tenths is 4, so $4.449 \rightarrow 4.4$. 4.449 is closer to 4.4 than to 4.5. <i>1 mark: double rounding</i> <i>1 mark: correct method</i> <i>1 mark: 4.4</i>	3
3	Same value; shows 2 d.p. accuracy	$\frac{30}{100} = \frac{3}{10}$, so the value is equal, but 0.30 tells the reader it has been rounded to hundredths. <i>1 mark each point</i>	2
4	10.0	The 6 rounds the 9 tenths up to 10 tenths, which carries into the ones: $9.9 + 0.1 = 10.0$ <i>2 marks: explanation</i>	2

D

Challenge *solutions and marking criteria*

/ 10 marks

Q	Answer	Working / sample response	Marks
1	2.550 and 2.554	To round to 2.55 it must be 2.545 to 2.554. To round to 2.6 it must be at least 2.550. Overlap: 2.550 to 2.554. <i>1 mark each condition</i> <i>1 mark: both values</i>	3
2	7.0 vs 6.9	Exact: $7.02 \rightarrow 7.0$. Rounded first: $1.3 + 2.3 + 3.3 = 6.9$. Each rounding loses 0.04; three of them add up to 0.12. <i>1 mark: 7.0</i> <i>1 mark: 6.9</i> <i>1 mark: explanation</i>	3
3	100	From 4.50 to 5.49: $50 + 50 = 100$ numbers <i>1 mark: range 4.50–5.49</i> <i>1 mark: 100</i>	2
4	1	$20 = 3 \times 6 + 2$, so it is the 2nd digit of the block: 1 <i>1 mark: uses the repeating block of 6</i> <i>1 mark: 1</i>	2