1.7 Rounding: Test Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Round 84 to the nearest 10.

(Total for Question 1 is 1 mark)

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2 Circle the correctly rounded value of 365 to the nearest 10.

- ☐ A) 360
- ☐ B) 370
- ☐ C) 300
- ☐ D) 400

(Total for Question 2 is 1 mark)

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3 Write down a possible value of a whole number that rounds to 40 when rounded to the nearest 10.

(Total for Question 3 is 1 mark)

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4 Round 3,652 to the nearest 100.

(Total for Question 4 is 1 mark)

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5 Work out 6.5 + 8.61. Give your answer to 1 decimal place.

(Total for Question 5 is 2 marks)

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6 A machine measures a length as 19.7824 metres. Write this length (a) correct to 2 decimal places, (b) correct to 3 significant figures.

(Total for Question 6 is 2 marks)

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7 Work out 3.33 + 3.2. Give your answer to 1 decimal place.

(Total for Question 7 is 2 marks)

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8 Work out 1.53 + 9.75. Give your answer to 1 decimal place.

(Total for Question 8 is 2 marks)

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9 The number 5,738 people attended an air show.
Complete the table by rounding 5,738 to the accuracy shown.

Accuracy	Nearest value
10	
100	
1000	

(a) Round 5,738 to the nearest 10. **(1)**

(b) Round 5,738 to the nearest 100. **(1)**

(c) Round 5,738 to the nearest 1000. **(1)**

(Total for Question 9 is 3 marks)

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10 A number is rounded to the nearest 10. The result is 60.
Is it possible that the original number was 65? Give a reason for your answer.

(Total for Question 10 is 1 mark)

11 A cinema orders 187 boxes of popcorn at £3.85 each.
Estimate the total cost by rounding each number to 1 significant figure.

(Total for Question 11 is 2 marks)

12 The temperature recorded at a weather station one morning in February was -4.86°C.
Round -4.86 to 1 decimal place.

(Total for Question 12 is 1 mark)

13 Round 92,715 to the nearest 1,000.

(Total for Question 13 is 1 mark)

14 Kwame rounds 6.454 to 1 decimal place. He writes 6.4.
Explain Kwame's mistake and write down the correct rounded value.

(Total for Question 14 is 2 marks)

15 Show that rounding 249.6 to the nearest 10, and then rounding that answer to the nearest 100, gives a different result from rounding 249.6 directly to the nearest 100.

(Total for Question 15 is 2 marks)

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16 A factory produced 12,642 items this week. Report this total rounded to the nearest 100.

(Total for Question 16 is 1 mark)

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17 Round 5.638 to 2 decimal places.

(Total for Question 17 is 1 mark)

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18 Circle the number below that rounds to 3,600 when rounded to the nearest 100.

- ☐ A) 3,542
- ☐ B) 3,589
- ☐ C) 3,651
- ☐ D) 3,499

(Total for Question 18 is 1 mark)

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19 A shop price is £24.95. Give a quick estimate of the price to 2 significant figures for a mental comparison.

(Total for Question 19 is 1 mark)

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20 A student multiplies 129.7 by 0.486 and writes 63.0 as the result. Use rounding to 2 significant figures to estimate the product and say whether 63.0 is a reasonable answer.

(Total for Question 20 is 2 marks)

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21 Calculate 46.8 x 3.25. Give your answer rounded to 2 decimal places. Then estimate the product by rounding each number to 1 significant figure and say whether your rounded answer is reasonable.

(Total for Question 21 is 3 marks)

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22 Priya rounds 0.5471 to 3 significant figures and writes 0.548.

(a) State Priya's mistake. **(1)**

(b) Write down the correct answer. **(1)**

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(Total for Question 22 is 2 marks)

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23 A minibus hire company works out 812.4 / 3.9 and gets an answer of 208.3. By rounding each number to 1 significant figure, estimate the value of 812.4 / 3.9, and state whether 208.3 is a reasonable answer.

(Total for Question 23 is 2 marks)

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24 Round 3,500 to the nearest 1,000 and to the nearest 100. Explain why one of your two answers needed the 'round half up' rule to decide it, but the other did not.

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.....

.....

(Total for Question 24 is 3 marks)

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25 A stationery order comes to £4.65, £7.28 and £2.19 for three separate items. Work out the exact total cost. Then estimate the total by rounding each cost to the nearest pound before adding, and state whether this estimate matches the exact total when the exact total is also rounded to the nearest pound.

(Total for Question 25 is 3 marks)

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Mark scheme · 1.7 Rounding: Test Pack

A correct answer earns full marks unless the question asks for working, a method, proof or explanation.

Question 1

80 cao **B1**

Answer: 80

Question 2

B (370) cao **B1**

Answer: B) 370

Question 3

any whole number from 35 up to and including 44 oe, e.g. 38 or 41 or 44 **B1**

Answer: e.g. 41 (any whole number 35 to 44 inclusive)

Question 4

3,700 cao **B1**

Answer: 3,700

Question 5

15.11 seen **M1**

15.1 cao **A1**

Answer: 15.1

Question 6

19.78 cao **B1**

19.8 cao **B1**

Answer: (a) 19.78, (b) 19.8

Question 7

6.53 seen **M1**

6.5 cao **A1**

Answer: 6.5

Question 8

11.28 seen **M1**

11.3 cao **A1**

Answer: 11.3

Question 9

(a) 5,740 cao **B1**

(a) Answer: 5,740

(b) 5,700 cao **B1**

(b) Answer: 5,700

(c) 6,000 cao **B1**

(c) Answer: 6,000

Question 10

No, with correct reason, e.g. 65 is exactly halfway between 60 and 70 and by the standard convention rounds up to 70, not down to 60 **B1**

Answer: No

Question 11

187 rounds to 200 and 3.85 rounds to 4 oe **M1**

800 (pounds) cao, ft from correctly rounded values **A1**

Answer: £800

Question 12

-4.9 cao **B1**

Answer: -4.9°C

Question 13

93,000 cao **B1**

Answer: 93,000

Question 14

correct explanation, e.g. Kwame only looked at the first decimal digit 4 and ignored the digits after it, instead of checking the second decimal digit (5) to decide whether to round up oe **C1**

6.5 cao **B1**

Answer: 6.5

Question 15

249.6 rounded to the nearest 10 is 250, and 250 rounded to the nearest 100 is 300 oe **M1**

dep 249.6 rounded directly to the nearest 100 is 200, correctly identified as different from 300, cso **C1**

Answer: Two-step: 300. Direct: 200. These are different.

Question 16

12,600 cao **B1**

Answer: 12,600

Question 17

5.64 cao **B1**

Answer: 5.64

Question 18

B (3,589) cao **B1**

Answer: B) 3,589

Question 19

£25 cao **B1**

Answer: 25

Question 20

estimate using 130 x 0.49 = 63.7 oe **M1**

conclude 63.0 is reasonable as it is close to the estimate cao **A1**

Answer: Yes, reasonable (estimate 63.7)

Question 21

correct calculation of product, e.g. 46.8 x 3.25 = 152.1 or method shown **M1**

152.10 cao **A1**

estimation: 50 x 3 = 150 and conclusion that 152.10 is reasonable oe **B1**

Answer: 152.10

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Question 22

(a) identifies that the 4th significant figure is 1, which is less than 5, so the third significant figure (7) should stay the same, not round up to 8 oe **B1**

(a) Answer: Priya rounded up the third significant figure when she should not have: the digit after it is 1, which is less than 5.

(b) 0.547 cao **B1**

(b) Answer: 0.547

Question 23

estimate using 800 / 4 = 200 oe **M1**

conclude 208.3 is reasonable as it is close to the estimate cao **A1**

Answer: Yes, reasonable (estimate 200)

Question 24

nearest 1,000 = 4,000 identified, recognising 3,500 is exactly halfway between 3,000 and 4,000 **M1**

nearest 100 = 3,500 identified, recognising 3,500 is already an exact multiple of 100 **M1**

explains that the round-half-up rule is only needed at the accuracy where the number sits exactly on a boundary (nearest 1,000 here), whereas 3,500 is already an exact hundred so no rounding decision arises there oe **B1**

Answer: nearest 1,000 = 4,000; nearest 100 = 3,500. The round-half-up rule was needed for the nearest 1,000 (3,500 is exactly halfway between 3,000 and 4,000), but not for the nearest 100 (3,500 is already an exact multiple of 100, so there is no rounding decision to make).

Question 25

exact total 4.65 + 7.28 + 2.19 = 14.12 shown **M1**

estimate 5 + 7 + 2 = 14 (each cost rounded to the nearest pound before adding) cao **A1**

states the estimate (14) matches the exact total rounded to the nearest pound (14.12 rounds to 14) oe **B1**

Answer: Exact total £14.12; estimate £14; yes, they match (both round to £14).

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