2.2 Using a Calculator: Test Pack

EDEXCEL 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Work out 3.6 + 4.9 x 2

(Total for Question 1 is 1 mark)

2 Work out 7.5 × 4.

(Total for Question 2 is 1 mark)

3 Calculate 1 ÷ 0.25.

(Total for Question 3 is 1 mark)

4 Work out -8 + 15.

(Total for Question 4 is 1 mark)

5 Write down 5/6 - 1/4 as a single fraction.

(Total for Question 5 is 1 mark)

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6 By rounding each number to 1 significant figure, work out an estimate for the value of (19.6 x 4.8)/2.1

(Total for Question 6 is 2 marks)

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7 A minibus can carry a maximum of 15 passengers. 82 people need transporting to a concert. Work out the least number of minibuses needed.

(Total for Question 7 is 2 marks)

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8 Work out (cube root of 82) + 6.1. Give your answer correct to 3 significant figures.

(Total for Question 8 is 2 marks)

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9 Use your calculator to work out the value of $\sqrt{6.7^2 + 3.3^2}$. Write down all the figures on your calculator display, then give your answer correct to 1 decimal place.

(Total for Question 9 is 2 marks)

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10 Work out 2.6 x $\sqrt{45}$. Give your answer correct to 3 significant figures.

(Total for Question 10 is 2 marks)

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11 A calculator shows the answer to 22/7 as 3.142857143. Round this answer to 3 significant figures.

(Total for Question 11 is 1 mark)

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12 Show that $5.2^2 - 3 \times 8.4 = 1.84$

(Total for Question 12 is 2 marks)

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13 Ben wants to work out (8.4 + 3.6) / 2. He types 8.4 + 3.6 / 2 into his calculator and gets an answer of 10.2. Explain the mistake Ben has made, and work out the correct answer.

(Total for Question 13 is 3 marks)

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14 Use your calculator to work out 5/13 as a decimal. Give your answer correct to 3 decimal places.

(Total for Question 14 is 2 marks)

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15 Ffion uses her calculator to work out 4.5 x 3.2. She then uses the ANS key to subtract 2.6 from this answer. Work out her final result.

(Total for Question 15 is 2 marks)

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16 Work out $(7.2 \times 10^8) / (4 \times 10^3)$. Give your answer in standard form.

(Total for Question 16 is 3 marks)

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17 A calculator shows 3.333 as the result of 10 ÷ 3, rounded to 3 decimal places. Give a lower bound and an upper bound for the exact value of 10 ÷ 3.

(Total for Question 17 is 2 marks)

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18 Kwame wants to work out 42 / (3 + 4). He types 42 / 3 + 4 into his calculator and gets 18. Explain the mistake Kwame has made, and work out the correct answer.

(Total for Question 18 is 3 marks)

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19 Erin uses M+ to enter 120, 85 and 95 into the calculator memory. She recalls the memory and divides by 3 to find the mean. Work out the mean.

(Total for Question 19 is 3 marks)

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20 A calculator displays 2.35 to 3 significant figures for the value of 7 ÷ x. Find the lower and upper bounds for x, giving your answers to 3 decimal places.

(Total for Question 20 is 3 marks)

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21 Show that $(\sqrt{50} - \sqrt{2})(\sqrt{50} + \sqrt{2}) = 48$. Hence find the exact value of $\sqrt{50} - \sqrt{2}$.

(Total for Question 21 is 4 marks)

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Mark scheme · 2.2 Using a Calculator: Test Pack

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

Question 1

13.4 cao **B1**

Answer: 13.4

Question 2

30 cao **B1**

Answer: 30

Question 3

4 cao **B1**

Answer: 4

Question 4

7 cao **B1**

Answer: 7

Question 5

7/12 cao **B1**

Answer: 7/12

Question 6

20, 5 and 2 seen (correct rounding to 1 sf, oe) **M1**

50 (ft from correct rounding) **A1**

Answer: 50

Question 7

82/15 (= awrt 5.47) seen **M1**

6 cao (must round up, not to nearest whole number) **A1**

Answer: 6

Question 8

10.444 or better seen **M1**

10.4 cao **A1**

Answer: 10.4

Question 9

7.4686 or better seen **B1**

7.5 cao **B1**

Answer: 7.5

Question 10

17.441 or better seen **M1**

17.4 cao **A1**

Answer: 17.4

Question 11

3.14 cao **B1**

Answer: 3.14

Question 12

27.04 and 25.2 both seen **M1**

cso, fully correct working shown leading to 1.84 **A1**

Answer: 1.84 (shown)

Question 13

correctly identifies that Ben needed to use brackets around 8.4 + 3.6 before dividing by 2 (oe), so his calculator divided only the 3.6 by 2 **C1**

(8.4 + 3.6) / 2 = 12 / 2 seen **M1**

6 cao **A1**

Answer: 6 (Ben should have used brackets: (8.4 + 3.6) / 2)

Question 14

0.3846... (awrt 0.3846) seen **M1**

0.385 cao (3 dp) **A1**

Answer: 0.385

Question 15

4.5 x 3.2 = 14.4 seen (or correct use of ANS shown) **M1**

11.8 cao **A1**

Answer: 11.8

Question 16

1.8 seen (or 7.2/4 = 1.8 seen) **M1**

correct index, 10^5, seen ($10^8 / 10^3 = 10^5$) **M1**

1.8×10^5 cao **A1**

Answer: 1.8×10^5

Question 17

state bounds for the displayed value 3.333 to 3 d.p.: $3.3325 \leq$ value < 3.3335 **M1**

lower bound 3.3325 and upper bound 3.3335 cao **A1**

Answer: $3.3325 \leq 10/3 < 3.3335$

Question 18

identifies that Kwame did not use brackets, so the calculator divided 42 by 3 before adding 4, instead of dividing 42 by the total (3 + 4) oe **M1**

correct method: evaluate 3 + 4 = 7, then divide 42 by 7 **M1**

6 cao **A1**

Answer: Kwame's mistake: he did not enter brackets around (3 + 4), so his calculator divided 42 by 3 first and then added 4, instead of dividing 42 by the total (3 + 4). Correct answer: 6

Question 19

sum the three numbers to get 300 or show use of memory total **M1**

divide by 3 shown **M1**

100 cao **A1**

Answer: 100

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Question 20

state bounds for 2.35 to 3 s.f.: $2.345 \leq y < 2.355$	**M1**
use $x = 7 / y$ to get bounds for x (invert bounds) oe	**M1**
x is such that $2.972 < x \leq 2.985$ (answers to 3 d.p.)	**A1**

Answer: $2.972 < x \leq 2.985$

Question 21

use $(a - b)(a + b) = a^2 - b^2$ with $a = \sqrt{50}$, $b = \sqrt{2}$ (cso)	**M1**
evaluate $a^2 - b^2 = 50 - 2 = 48$ (cso)	**M1**
rearrange to give $\sqrt{50} - \sqrt{2} = 48/(\sqrt{50} + \sqrt{2})$ (cso)	**M1**
simplify using $\sqrt{50} = 5\sqrt{2}$ to get $4\sqrt{2}$ cao	**A1**

Answer: $4\sqrt{2}$

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