2.2D Using a Calculator: Fluency and Exam Drill

Total Marks

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 40 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Work out 18 + 27.

(Total for Question 1 is 1 mark)

2 Work out 7.5 × 4.

(Total for Question 2 is 1 mark)

3 Work out 9^2 - 12.

(Total for Question 3 is 1 mark)

4 Work out 6 × (5 + 3).

(Total for Question 4 is 1 mark)

5 Write down 1/2 + 1/3 as a fraction.

(Total for Question 5 is 1 mark)

6 Calculate 1 ÷ 0.25.

(Total for Question 6 is 1 mark)

7 Yusuf uses his calculator memory. He calculates 12.5×8 and stores the answer in memory. He then recalls the memory and adds 47. Work out the final result.

(Total for Question 7 is 2 marks)

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8 Work out $(3/4) \div (1/8)$.

(Total for Question 8 is 2 marks)

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9 Work out $(15 - 3) \div (2 + 1)$.

(Total for Question 9 is 2 marks)

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10 Work out $\sqrt{81} + 2^3$.

(Total for Question 10 is 2 marks)

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

(Total for Question 11 is 2 marks)

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12 Callum uses M+ to store three numbers: he enters 4.2, presses M+; 5.6, presses M+; 3.8, presses M+. He then recalls the memory and divides by 3 to find the average. Work out the average to 3 decimal places.

(Total for Question 12 is 2 marks)

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

(Total for Question 13 is 3 marks)

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14 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 14 is 3 marks)

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15 Work out $2\ 1/2 \times 3\ 1/4$ and give your answer as a mixed number. You may use the fraction key on a calculator.

(Total for Question 15 is 3 marks)

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

(Total for Question 16 is 4 marks)

Mark scheme · 2.2D Using a Calculator: Fluency and Exam Drill

Question 1

- **B1** 45 cao
- **Answer: 45**

Question 2

- **B1** 30 cao
- **Answer: 30**

Question 3

- **B1** 69 cao
- **Answer: 69**

Question 4

- **B1** 48 cao
- **Answer: 48**

Question 5

- **B1** 5/6 cao
- **Answer: 5/6**

Question 6

- **B1** 4 cao
- **Answer: 4**

Question 7

- **M1** use memory or calculate $12.5 \times 8 = 100$ (method shown) oe
- **A1** 147 cao
- **Answer: 147**

Question 8

- **M1** correct method, e.g. $(3/4) \times 8$ or $(3/4) \div (1/8)$ oe
- **A1** 6 cao
- **Answer: 6**

Question 9

- **M1** identify (15-3)=12 and (2+1)=3 or equivalent method
- **A1** 4 cao
- **Answer: 4**

Question 10

- **M1** correct method e.g. $\sqrt{81}=9$ and $2^3=8$ shown
- **A1** 17 cao
- **Answer: 17**

Question 11

- **M1** state bounds for the displayed value 3.333 to 3 d.p.: $3.3325 \leq \text{value} < 3.3335$
- **A1** lower bound 3.3325 and upper bound 3.3335 cao
- **Answer: $3.3325 \leq 10/3 < 3.3335$**

Question 12

- **M1** sum the numbers or show memory total 13.6
- **A1** 4.533 cao (13.6/3 = 4.533333... rounded to 3 d.p.)
- **Answer: 4.533**

Question 13

- **M1** 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
- **A1** x is such that $2.972 < x \leq 2.985$ (answers to 3 d.p.)
- **Answer: $2.972 < x \leq 2.985$**

Question 14

- **M1** sum the three numbers to get 300 or show use of memory total
- **M1** divide by 3 shown
- **A1** 100 cao
- **Answer: 100**

Question 15

- **M1** convert to improper fractions or use fraction key: 5/2 × 13/4 oe
- **M1** multiply to get 65/8 or show calculator method
- **A1** 8 1/8 cao
- **Answer: 8 1/8**

Question 16

- **M1** 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)
- **A1** simplify using $\sqrt{50}$ =5sqrt(2) to get $4\sqrt{2}$ cao
- **Answer: $4\sqrt{2}$**