



2.1D Calculation Problems: Fluency and Exam Drill

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Amelia buys 3 exercise books. Each book costs £1.75. Work out how much Amelia pays in total.

(Total for Question 1 is 1 mark)

- 2** Noah pays with a £20 note. He buys a book for £6.80 and a sandwich for £2.45. Work out the change Noah should get.

(Total for Question 2 is 2 marks)

- 3** Priya pours 250 ml of squash equally into 4 cups. Work out the volume in each cup in millilitres.

(Total for Question 3 is 1 mark)

- 4** A packet of 12 biscuits costs £2.40. Work out the cost of 5 packets.

(Total for Question 4 is 2 marks)

- 5** A baker makes 50 cupcakes and packs them into boxes of 6. Work out how many full boxes the baker can make and how many cupcakes are left over.

(Total for Question 5 is 2 marks)

- 6** A train journey takes 1 hour 20 minutes and covers 85 miles. Work out the average speed of the train in miles per hour.

(Total for Question 6 is 3 marks)

- 7** A recipe uses 350 g of flour to make 4 portions. Work out how much flour is needed for 7 portions.

(Total for Question 7 is 3 marks)

- 8** A jumper is reduced by 15% in a sale. The original price is £48. Work out the sale price of one jumper, then the total cost of buying 3 jumpers at the sale price.

(Total for Question 8 is 3 marks)

- 9** Callum's car uses 9 litres of fuel to travel 150 km. At this rate, how many litres will he use to travel 350 km? Then work out the cost of that fuel if fuel costs £1.45 per litre.

(Total for Question 9 is 4 marks)

- 10** A school orders 24 tables at £39.50 each. There is a one-off delivery charge of £27.50. Work out the total cost.

(Total for Question 10 is 3 marks)

11 Yusuf invests £1200 at simple interest of 3.5% per year for 4 years.

- (a) Work out the total interest earned.
- (b) Work out the total amount he has after 4 years.

(a) (a) Work out the total interest earned. (2)

.....
(b) (b) Work out the total amount after 4 years. (2)

.....
(Total for Question 11 is 4 marks)

12 A rectangle has length 3 times its width. The perimeter of the rectangle is 96 cm.

- (a) Find the width and the length.
- (b) Work out the area of the rectangle.

(a) (a) Find the width and the length. (2)

.....
(b) (b) Work out the area of the rectangle. (2)

.....
(Total for Question 12 is 4 marks)

13 A photographer charges a base fee of £45 plus £12 per hour. Noah hires the photographer for 3.5 hours.

(a) Work out the total cost.

(b) Work out the average cost per hour, correct to the nearest penny.

(a) (a) Work out the total cost.

(2)

(b) (b) Work out the average cost per hour, correct to the nearest penny.

(2)

(Total for Question 13 is 4 marks)

14 A factory produces 720 widgets each day. 20% of the widgets are defective. The non-defective widgets are packed into boxes of 8. Work out how many full boxes are packed each day.

(Total for Question 14 is 3 marks)

15 A car hire charges £45 per day plus 15p per mile. Tariq hires a car for 3 days and drives 260 miles.

(a) Work out the total amount Tariq pays.

(b) Work out the average cost per mile, correct to the nearest penny.

(a) (a) Work out the total amount Tariq pays.

(2)

(b) (b) Work out the average cost per mile, correct to the nearest penny.

(2)

(Total for Question 15 is 4 marks)

- 16** A school has a budget of £12,500. They spend 18% of the budget on books and £2,350 on equipment. The remaining money is to be shared equally between 5 departments. Work out how much each department receives.

(Total for Question 16 is 4 marks)

Mark scheme · 2.1D Calculation Problems: Fluency and Exam Drill

Question 1

- **B1** £5.25 cao
- **Answer: £5.25 (£5.25 cao).** Please award B1 for correct total cost of £5.25 if seen as numeric 5.25 or currency format £5.25 only. **Note:** $1.75 \times 3 = 5.25$. (**Check:** $1.75 + 1.75 + 1.75 = 5.25$.)

Question 2

- **M1** adds $£6.80 + £2.45$ correctly to get £9.25 (method)
- **A1** £10.75 cao
- **Answer: £10.75. Working check:** $6.80 + 2.45 = 9.25$; $20.00 - 9.25 = 10.75$.

Question 3

- **B1** 62.5 ml cao
- **Answer: 62.5 ml. Working check:** $250 \div 4 = 62.5$.

Question 4

- **M1** uses multiplication 2.40×5 (method)
- **A1** £12.00 cao
- **Answer: £12.00. Working check:** $2.40 \times 5 = 12.00$.

Question 5

- **M1** divides 50 by 6 to find number of full boxes (method)
- **A1** 8 boxes and 2 left over cao
- **Answer: 8 full boxes and 2 cupcakes left over. Working check:** $50 \div 6 = 8 \text{ remainder } 2$.

Question 6

- **M1** converts 1 hour 20 minutes to hours = $\frac{4}{3}$ hours
- **M1** uses $85 \div (\frac{4}{3})$ or $85 \times \frac{3}{4}$ to find speed
- **A1** 63.75 mph cao
- **Answer: 63.75 mph. Working check:** $1 \text{ h } 20 \text{ min} = 1 + \frac{20}{60} = \frac{4}{3} \text{ h}$; $85 \div (\frac{4}{3}) = 85 \times \frac{3}{4} = \frac{255}{4} = 63.75$.

Question 7

- **M1** finds flour per portion: $350 \div 4$
- **M1** multiplies by 7 to scale up (method)
- **A1** 612.5 g cao
- **Answer: 612.5 g. Working check:** $350 \div 4 = 87.5 \text{ g per portion}$; $87.5 \times 7 = 612.5 \text{ g}$.

Question 8

- **M1** finds 15% of £48 and subtracts to get sale price
- **M1** multiplies sale price by 3 (method)
- **A1** £122.40 cao
- **Answer: Sale price = £40.80; cost of 3 = £122.40. Working check:** 15% of 48 = 7.20 so sale price $48 - 7.20 = 40.80$; $40.80 \times 3 = 122.40$.

Question 9

- **M1** finds litres per km: $9 \div 150$
- **M1** uses rate to find litres for 350 km
- **M1** multiplies litres by £1.45 to find cost
- **A1** £30.45 cao
- **Answer: 21 litres and £30.45. Working check:** $9 \div 150 = 0.06 \text{ L/km}$; $0.06 \times 350 = 21 \text{ L}$; $21 \times 1.45 = 30.45$.

Question 10

- **M1** multiplies 24×39.50
- **M1** adds delivery charge to the product
- **A1** £975.50 cao
- **Answer: £975.50. Working check: $39.50 \times 24 = 948.00$; $948.00 + 27.50 = 975.50$.**

Question 11

- (a) **M1** uses 1200×0.035 to find interest per year
- (a) **A1** £168.00 cao for total interest over 4 years or method showing $42 \times 4 = 168$
- **(a) Answer: £168.00 interest**
- (b) **M1** adds interest to principal or multiplies correctly ($1200 + 168$)
- (b) **A1** £1,368.00 cao
- **(b) Answer: £1,368.00**

Question 12

- (a) **M1** forms equation $2(3w + w) = 96$ or $8w = 96$
- (a) **A1** width = 12 cm and length = 36 cm cao
- **(a) Answer: width 12 cm, length 36 cm**
- (b) **M1** uses area = length $\times$ width
- (b) **A1** 432 cm^2 cao
- **(b) Answer: 432 cm^2**

Question 13

- (a) **M1** calculates $45 + 12 \times 3.5$
- (a) **A1** £87.00 cao
- **(a) Answer: £87.00**
- (b) **M1** divides total cost by 3.5 correctly
- (b) **A1** £24.86 cao (rounded to nearest penny)
- **(b) Answer: £24.86 per hour (to nearest penny).**

Question 14

- **M1** finds number non-defective: $720 - 20\% \text{ of } 720$
- **M1** divides the non-defective number by 8
- **A1** 72 boxes cao
- **Answer: 72 full boxes. Working check: $20\% \text{ of } 720 = 144$ defective, non-defective = $720 - 144 = 576$; $576 \div 8 = 72$.**

Question 15

- (a) **M1** calculates day cost and mileage cost
- (a) **A1** £174.00 cao
- **(a) Answer: £174.00**
- (b) **M1** divides total cost by 260
- (b) **A1** £0.67 per mile cao (to nearest penny)
- **(b) Answer: £0.67 per mile (to nearest penny).**

Question 16

- **M1** finds cost of books: $18\% \text{ of } 12,500$
- **M1** subtracts books and equipment from budget to find remainder
- **M1** divides remainder by 5 to share equally
- **A1** £1,580 per department cao
- **Answer: £1,580 each. Working check: $18\% \text{ of } 12,500 = 0.18 \times 12,500 = 2,250$; remaining = $12,500 - 2,250 - 2,350 = 7,900$; $7,900 \div 5 = 1,580$.**