



3.7H Percentages: Higher Tier Practice

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 75 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Write 15% as a fraction in its simplest form.

(Total for Question 1 is 2 marks)

- 2** A jacket costs 120 pounds. It is reduced by 25% in a sale and then a further 10% is taken off the reduced price. Work out the final price of the jacket.

(Total for Question 2 is 3 marks)

- 3** The population of a town increases by 8% each year. If the current population is 25 000, work out the population after 2 years. Give your answer to the nearest whole person.

(Total for Question 3 is 3 marks)

- 4** A school fundraiser collected 840 pounds. The organisers decide to give 12% to charity, use 35% for equipment, and split the remainder equally between two sports teams. Work out how much each sports team receives. Show your working.

(Total for Question 4 is 4 marks)

- 5** Show that increasing a number by 20% and then decreasing the result by 20% does not return to the original number. Use an algebraic approach with n as the original number and give the final expression in terms of n .

(Total for Question 5 is 4 marks)

- 6** A laptop is on sale at 15% off the marked price. After the sale the shop increases the sale price by 10% to return nearer to the original price. If the final price is 810 pounds, find the original marked price. Give your answer to the nearest penny.

(Total for Question 6 is 5 marks)

- 7** A recipe requires 250 g of flour. A baker wants to increase all ingredient quantities by 12.5% to make a larger batch. Work out the new required mass of flour, giving your answer in grams.

(Total for Question 7 is 4 marks)

- 8** A bank offers 6% compound interest per year, compounded annually. Sara invests 2000 pounds for 3 years. Work out the total interest earned after 3 years. Give your answer to the nearest pound.

(Total for Question 8 is 5 marks)

Mark scheme · 3.7H Percentages: Higher Tier Practice

Question 1

- **M1** express 15% as $15/100$ or show method to convert percentage to fraction
- **A1** $3/20$ cao
- **Answer: 3/20**

Question 2

- **M1** apply 25% reduction: $120 \times 0.75 = 90$ or equivalent method
- **M1** apply further 10% reduction: $90 \times 0.9 = 81$ (method)
- **A1** 81.00 cao
- **Answer: 81.00**

Question 3

- **M1** use $25\,000 \times 1.08 \times 1.08$ or $25\,000 \times 1.08^2$
- **M1** calculate $25\,000 \times 1.1664 = 29\,160$ oe
- **A1** 29 160 cao (to nearest whole person)
- **Answer: 29 160**

Question 4

- **M1** calculate amounts for charity and equipment: $840 \times 0.12 = 100.8$ and $840 \times 0.35 = 294$
- **M1** subtract from total to get remainder: $840 - 100.8 - 294 = 445.2$
- **M1** divide remainder by 2: $445.2 / 2 = 222.6$
- **A1** 222.60 cao
- **Answer: 222.60**

Question 5

- **M1** state after increase: $n \times 1.20$ or $6/5 n$
- **M1** state after decrease: $(n \times 1.20) \times 0.80$ or $(6/5 n) \times 4/5$
- **M1** simplify to give $(6/5 \times 4/5) n = 24/25 n$
- **A1** conclude $24/25 n$, not equal to n , therefore does not return to original (cso)
- **Answer: 24/25 n**

Question 6

- **M1** express sale price as $0.85 P$ where P is original price
- **M1** final price after 10% increase is $0.85 P \times 1.10 = 0.935 P$
- **M1** set $0.935 P = 810$ and form equation $P = 810 / 0.935$
- **M1** calculate $P = 866.309523...$ or equivalent
- **A1** 866.31 to nearest penny cao
- **Answer: 866.31**

Question 7

- **M1** identify percentage increase and write multiplier $1 + 12.5/100 = 1.125$
- **M1** convert 12.5% to fraction $1/8$ or show equivalent method
- **M1** calculate $250 \times 1.125 = 281.25$ (method)
- **A1** 281.25 g cao
- **Answer: 281.25 g**

Question 8

- **M1** use amount = 2000×1.06^3
- **M1** calculate $2000 \times 1.191016 = 2382.032$ (or equivalent)
- **M1** interest = amount - principal = $2382.032 - 2000 = 382.032$
- **M1** round to nearest pound = 382
- **A1** 382 pounds cao
- **Answer: 382**