

Money and Financial Maths

Solutions

For Pearson Edexcel GCSE Mathematics (1MA1) • Foundation tier

Each question is shown in grey, followed by the working, one step per line. The final answer is in a box. *Marks* shows how the marks are usually given in the exam, and **Tip** points out a common mistake.

1 (3 marks)

Aisha sells a painting for £318

She makes a profit of £78

Work out Aisha's percentage profit.

First find what Aisha paid for the painting.

Cost price = selling price – profit

$$318 - 78 = £240$$

$$\text{Percentage profit} = \frac{\text{profit}}{\text{cost price}} \times 100$$

$$\frac{78}{240} \times 100 = 32.5\%$$

Answer: 32.5%

Tip: Divide the profit by what Aisha **paid** (£240), not by the selling price. $\frac{78}{318} \times 100 = 24.5\%$ is a common wrong answer.

Marks: 1 mark for £240. 1 mark for $\frac{78}{240} \times 100$. 1 mark for 32.5%.

2 (3 marks)

Ella earns £31 250 each year.

She does not pay income tax on the first £12 570 she earns.

She pays income tax at 20% on the rest.

Work out how much income tax Ella pays each year.

She pays no tax on the first £12 570.

Amount she pays tax on: $31\,250 - 12\,570 = £18\,680$

Tax is 20% of this.

$$0.2 \times 18\,680 = £3736$$

Answer: £3736

Marks: 1 mark for £18 680. 1 mark for $0.2 \times 18\,680$. 1 mark for £3736.

3 (3 marks)

Sanjay buys a used car for £5850

He spends £350 on repairs.

He then sells the car for £5425

Work out Sanjay's percentage loss.

$$\text{Total amount Sanjay spent: } 5850 + 350 = £6200$$

$$\text{Loss: } 6200 - 5425 = £775$$

Divide the loss by the total amount he spent:

$$\frac{775}{6200} \times 100 = 12.5\%$$

Answer: 12.5%

Tip: Include the repairs in what Sanjay spent. Using only £5850 gives the wrong loss.

Marks: 1 mark for £6200 or £775. 1 mark for $\frac{775}{6200} \times 100$. 1 mark for 12.5%.

4 (4 marks)

Priya buys a new kitchen.

The price of the kitchen is £6800 plus VAT at 20%

Priya pays a deposit.

She then pays 24 monthly payments of £289

What percentage of the total cost of the kitchen did Priya pay as a deposit?

$$\text{VAT: } 20\% \text{ of } 6800 = 0.2 \times 6800 = £1360$$

$$\text{Total cost: } 6800 + 1360 = £8160$$

Total of the monthly payments: $24 \times 289 = £6936$

Deposit: $8160 - 6936 = £1224$

As a percentage of the total cost:

$$\frac{1224}{8160} \times 100 = 15\%$$

Answer: 15%

Tip: Compare the deposit with the total cost **including** VAT (£8160), not with £6800.

Marks: 1 mark for £8160. 1 mark for £6936. 1 mark for £1224. 1 mark for 15%.

5 (4 marks)

Ravi's electricity bill for April is £97.20

The bill is made up of

a standing charge of 45p for each day

27p for each kWh of electricity used.

April has 30 days.

Work out how many kWh of electricity Ravi used in April.

Standing charge for 30 days: $30 \times 0.45 = £13.50$ (45p = £0.45)

Amount paid for the electricity itself:

$$97.20 - 13.50 = £83.70$$

Each kWh costs £0.27

$$83.70 \div 0.27 = 310 \text{ kWh}$$

Answer: 310 kWh

Tip: Take off the standing charge **before** dividing by the price of 1 kWh. Keep the units the same: use pounds throughout, or pence throughout.

Marks: 1 mark for 30×0.45 . 1 mark for £83.70. 1 mark for dividing by 0.27 (or 27p). 1 mark for 310.

6 (4 marks)

A running club organises a fun run for charity.

Each runner pays an entry fee of £18

For each runner, the club spends £4.50 on a medal and a T-shirt.

The club also pays £620 for first aid and marshals.

140 people run in the fun run.

The club gives all of the money left over to the charity.

What percentage of the money paid by the runners went to the charity?

Give your answer correct to 1 decimal place.

Money from the runners: $140 \times 18 = £2520$

Medals and T-shirts: $140 \times 4.50 = £630$

Total costs: $630 + 620 = £1250$

Money for the charity: $2520 - 1250 = £1270$

As a percentage of the money paid by the runners:

$$\frac{1270}{2520} \times 100 = 50.39 \dots \%$$

To 1 decimal place: 50.4%

Answer: 50.4%

Tip: Read what the percentage is “of”. Here it is a percentage of the money paid by the runners (£2520), not of the costs.

Marks: 1 mark for £2520. 1 mark for £1250. 1 mark for $\frac{1270}{2520} \times 100$. 1 mark for 50.4%.

7 (4 marks)

A shop buys 40 jackets for £48 each.

The shop sells 22 of the jackets for £60 each.

In a sale, the price of each of the other jackets is reduced by 45%

The shop sells all of these jackets in the sale.

Did the shop make a profit or a loss on the 40 jackets?

You must show working to justify your answer.

Cost: $40 \times 48 = £1920$

Full-price sales: $22 \times 60 = £1320$

Jackets left: $40 - 22 = 18$

Sale price: $60 \times 0.55 = £33$ (a 45% reduction leaves 55%)

Sale money: $18 \times 33 = £594$

Total money taken: $1320 + 594 = £1914$

£1914 is less than £1920, so the shop made a loss.

Loss: $1920 - 1914 = £6$

Answer: Loss (of £6)

Tip: Finish with a clear statement, such as “The shop made a loss of £6”. The last mark is for the conclusion.

Marks: 1 mark for £1320. 1 mark for the sale price £33. 1 mark for £594 or £1914. 1 mark for “loss” with £1914 and £1920 (or £6).

8 (4 marks)

Ffion bakes brownies to sell at a school fair.

The ingredients for one tray of 12 brownies cost £5.10

She bakes 6 trays of brownies.

She also pays £9 to hire a table at the fair.

Ffion wants to make a profit of at least 35%

She sells all the brownies at the same price.

What is the lowest price Ffion can charge for each brownie?

Ingredients: $6 \times 5.10 = £30.60$

Total cost: $30.60 + 9 = £39.60$

Number of brownies: $6 \times 12 = 72$

She wants at least 35% profit.

Money needed: $39.60 \times 1.35 = £53.46$

Price per brownie: $53.46 \div 72 = £0.7425$

£0.74 would be slightly too little.

So she must round **up** to £0.75

Answer: £0.75 (75p)

Tip: Check which way to round. Here 74p would give less than 35% profit, so you must round up.

Marks: 1 mark for £39.60. 1 mark for $\times 1.35$. 1 mark for dividing by 72. 1 mark for £0.75.
