1

Amelia is thinking of a mathematical expression. When she substitutes a = 5 and b = 2 into her expression, the result is 40.

Which of the following could be Amelia's expression?

A 4ab   B 8a + 4b   C b^2 + 18   D a^2 - ab

1

2

A shape on a coordinate grid is reflected in the x-axis and then translated two units to the right and five units down.

If the original shape had a point at coordinates (a, b), what are the coordinates of the corresponding point after the transformations?

A (a + 2, −b − 5)   B (a − 2, b + 5)   C (−a + 2, b − 5)   D (a + 2, b − 5)

1

3

A local bakery is making a large batch of cupcakes for a school fundraiser. The recipe requires 0.125 kg of flour per cupcake.

If the bakery needs to make 200 cupcakes, how many kilograms of flour will they need in total?

A 2.5   B 12.5   C 25   D 250

1

4

In a science experiment, a solution was created by mixing 0.75 litres of a chemical with water.

If the total volume of the solution was 7.5 litres, how many times was the chemical diluted?

A 100   B 1 000   C 10   D 10 000

1

5

Sarah has been saving up her pocket money for a while and has managed to accumulate £183.75.

She decides to treat herself by spending £37.99 on a new pair of trainers, £22.50 on a top, and £15.80 on a book.

After her shopping spree, how much money does Sarah have remaining?

A £107.46   B £68.17   C £91.66   D £145.45

1

6 Amir's local football club is trying to purchase new equipment.

Amir donates £57.80 towards the cause.

The football club manages to raise 50 times the amount Amir donated.

What is the total amount raised by Amir's football club?

A £2 890   **B** £289   **C** £5 780   **D** £28 900

1

7 A factory production line produces 24 cars per day and there are 20 production lines in the factory.

The company owns 5 of these factories across the country.

What is the maximum number of cars that could be produced by the company in a day?

A 2 400   **B** 480   **C** 120   **D** 24 000

1

8 A school has 525 students in total across three year groups.

There are 185 students in Year 7 and 165 students in Year 8.

How many students are there in Year 9?

A 175   **B** 155   **C** 195   **D** 135

1

9 Amelia is saving up to buy a new bicycle.

She puts her savings into a formula to calculate how much more she needs: $5(x + 23)$.

The result of the formula is £200.

How much money does Amelia currently have saved?

A £17   **B** £63   **C** £85   **D** £177

1

10 A chef begins preparing a meal at 9:15 am. He spends 24 minutes chopping vegetables, followed by 48 minutes cooking the main dish.

After a 12-minute break, he spends 30 minutes preparing the dessert. He then leaves to deliver the meal to a customer.

At what time does the chef leave to deliver the meal?

A 10:57 am   **B** 11:09 am   **C** 10:39 am   **D** 11:21 am

1