Fractions, Decimals and Percentages Word Problems Silver

1. A bag contains red and yellow beads. $\frac{3}{5}$ of the beads are red. Given that there are 25 beads in the bag, calculate the number of beads that are red.

2. In a class of 28 students, $\frac{2}{7}$ have a younger sibling. How many students in this class have a younger sibling?

3. During a sale, all items are advertised at 10% off the retail price. A coat usually costs £60. Work out the sale price of the coat.

4. A piece of ribbon measures 80cm. 15% of the ribbon is cut off. What length of ribbon is left?

5. In a survey, three out of five people said that they preferred summer over winter. Write this as a decimal.

6. A bag is advertised as having 20% off the retail price. If the bag usually costs £40, work out the sale price of the bag.

7. There are 36 biscuits in a biscuit tin. Bella eats $\frac{1}{3}$ of the biscuits. How many biscuits does Bella eat?

8. In a group of school children, 72% remember to bring a pencil to school, another 13% brought a pen and the rest forgot to bring either item. What percentage of students did not remember to bring a pencil or pen?

9. A headteacher carries out a survey. She asks 800 students what their favourite subject is. 500 students say that their favourite subject is maths. What proportion of students in this school say that their favourite subject is maths? Give your answer as a decimal.

10. At a theme park, eight out of every 20 people choose to buy a fast pass. What is this as a percentage?

11. In a leisure centre, 25% of people are swimming. The rest of the people are either in a fitness class or the gym. Given the number of people in a fitness class is double the number that are in the gym, work out the percentage of people at the leisure centre that are in the gym.

12. A bag of sweets contains 20 packets. $\frac{1}{4}$ of the packets are gummy sweets, $\frac{2}{5}$ are marshmallows and the rest are hard-boiled. How many packets of hard-boiled sweets are in the bag?

13. Maisie slices her birthday cake into several pieces. One slice is 12% of the whole cake and a different slice is $\frac{2}{25}$ of the whole cake. Which slice is larger? You must show your working.

14. A coat is reduced in a sale by 18%. Given that the normal price of the coat is £80, calculate the sale price.

15. In a class of 30 students, 10% stay at home while $\frac{5}{6}$ of the students go on a trip. The rest of the students stay at school. How many students stay at school?

Challenge:

Julia buys a car costing £8000. Each year, the car depreciates (goes down in value) by 15%. How much is the car worth after three years?

Fractions, Decimals and Percentages Word Problems Silver **Answers**

1. A bag contains red and yellow beads. $\frac{3}{5}$ of the beads are red. Given that there are 25 beads in the bag, calculate the number of beads that are red.

   25 ÷ 5 = 5 **3 × 5 = 15**

2. In a class of 28 students, $\frac{2}{7}$ have a younger sibling. How many students in this class have a younger sibling?

   28 ÷ 7 = 4 **2 × 4 = 8**

3. During a sale, all items are advertised at 10% off the retail price. A coat usually costs £60. Work out the sale price of the coat.

   £60 ÷ 10 = £6

   £60 − £6 = £54

4. A piece of ribbon measures 80cm. 15% of the ribbon is cut off. What length of ribbon is left?

   80cm ÷ 10 = 8cm

   8cm ÷ 2 = 4cm

   8cm + 4cm = 12cm

   80cm − 12cm = 68cm

5. In a survey, three out of five people said that they preferred summer over winter. Write this as a decimal.

   3 ÷ 5 = 0.6

6. A bag is advertised as having 20% off the retail price. If the bag usually costs £40, work out the sale price of the bag.

   £40 ÷ 10 = £4

   £4 × 2 = £8

   £40 − £8 = £32

7. There are 36 biscuits in a biscuit tin. Bella eats $\frac{1}{3}$ of the biscuits. How many biscuits does Bella eat?

   36 ÷ 3 = 12

8. In a group of school children, 72% remember to bring a pencil to school, another 13% brought a pen and the rest forgot to bring either item. What percentage of students did not remember to bring a pencil or pen?

   100% − 72% − 13% = 15%

9. A headteacher carries out a survey. She asks 800 students what their favourite subject is. 500 students say that their favourite subject is maths. What proportion of students in this school say that their favourite subject is maths? Give your answer as a decimal.

   500 ÷ 800 = 0.625

10. At a theme park, eight out of every 20 people choose to buy a fast pass. What is this as a percentage?

    8 ÷ 20 × 100 = 40%

11. In a leisure centre, 25% of people are swimming. The rest of the people are either in a fitness class or the gym. Given the number of people in a fitness class is double the number that are in the gym, work out the percentage of people at the leisure centre that are in the gym.

    100% − 25% = 75%

    75% ÷ 3 = 25%

12. A bag of sweets contains 20 packets. $\frac{1}{4}$ of the packets are gummy sweets, $\frac{2}{5}$ are marshmallows and the rest are hard-boiled. How many packets of hard-boiled sweets are in the bag?

    $\frac{1}{4}$ of 20 = 5

    $\frac{2}{5}$ of 20 = 8

    20 − 5 − 8 = 7

13. Maisie slices her birthday cake into several pieces. One slice is 12% of the whole cake and a different slice is $\frac{2}{25}$ of the whole cake. Which slice is larger? You must show your working.

    $\frac{2}{25}$ = 8%

    The 12% slice is larger (or other suitable explanation).

14. A coat is reduced in a sale by 18%. Given that the normal price of the coat is £80, calculate the sale price.

    18% of £80 = £14.40

    £80 − £14.40 = £65.60

15. In a class of 30 students, 10% stay at home while $\frac{5}{6}$ of the students go on a trip. The rest of the students stay at school. How many students stay at school?

    10% of 30 = 3

    $\frac{5}{6}$ of 30 = 25

    30 − 3 − 25 = 2 (or other suitable method).

Challenge:

Julia buys a car costing £8000. Each year, the car depreciates (goes down in value) by 15%. How much is the car worth after three years?

15% of £8000 = £1200

£8000 − £1200 = £6800

15% of £6800 = £1020

£6800 − £1020 = £5780

15% of £5780 = £867

£5780 − £867= £4913