**Problem Solving – Bar Model GREEN**

1. A phone costs £79. Bella buys this phone in a 30% off sale.

 How much does she pay for the phone in the sale?

2. Tom bought a coat for £49 in a 30% off sale.

 How much money did he save?

3. Jenny bought a wok for £9.60 in a 20% off sale.

 What was the price of the wok before the sale?

4. There is a world shortage of olive oil, so prices rise by 10%.

 A litre of olive oil now costs £7.26.

 How much did it cost before the 10% price rise?

5. Maya and Amit share £72 in the ratio 4 : 5

 How much does each person get?

6. There are only red and blue beads on a necklace.

 The ratio of blue to red beds is 3 : 5

 What fraction of the beads are blue?

7. Paul, Liam and Drake shared some money in the ratio 2 : 4 : 5

 Drake got £21 more than Paul.

How much did Liam get?

8. A bag contains black and white cubes in the ratio 3 : 7

 I add 8 black cubes to the bag.

 Now the ratio of black to white cubes is 5 : 7

 How many cubes are there in the bag?

9. Two numbers are in the ratio 1 : 4 and their difference is 33.

 What are the numbers?

**Problem Solving – Bar Model AMBER**

1. A phone costs £79. Bella buys this phone in a 30% off sale.

 How much does she pay for the phone in the sale?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

2. Tom bought a coat for £49 in a 30% off sale.

 How much money did he save?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

3. Jenny bought a wok for £9.60 in a 20% off sale.

 What was the price of the wok before the sale?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

4. There is a world shortage of olive oil, so prices rise by 10%.

 A litre of olive oil now costs £7.26.

 How much did it cost before the 10% price rise?

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |

5. Maya and Amit share £72 in the ratio 4 : 5

 How much does each person get?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |

6. There are only red and blue beads on a necklace.

 The ratio of blue to red beds is 3 : 5

 What fraction of the beads are blue?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |

7. Paul, Liam and Drake shared some money in the ratio 2 : 4 : 5

 Drake got £21 more than Paul.

How much did Liam get?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

8. A bag contains black and white cubes in the ratio 3 : 7

 I add 8 black cubes to the bag.

 Now the ratio of black to white cubes is 5 : 7

 How many cubes are there in the bag?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Black |  |  |  |  |  |  |  |
| White |  |  |  |  |  |  |  |

9. Two numbers are in the ratio 1 : 4 and their difference is 33.

 What are the numbers?

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

**Problem Solving – Bar Model RED**

1. A phone costs £79. Bella buys this phone in a 30% off sale.

What is the value of each section of the bar?

 How much does she pay for the phone in the sale?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

30%

2. Tom bought a coat for £49 in a 30% off sale.

What is the value of each section of the bar?

 How much money did he save?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

£49

30%

3. Jenny bought a wok for £9.60 in a 20% off sale.

What is the value of each section of the bar?

 What was the price of the wok before the sale?

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |

£9.60

20%

4. There is a world shortage of olive oil, so prices rise by 10%.

 A litre of olive oil now costs £7.26.

 How much did it cost before the 10% price rise?

£7.26

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  |  |

10%

100%

5. Maya and Amit share £72 in the ratio 4 : 5

 How much does each person get?

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |

6. There are only red and blue beads on a necklace.

 The ratio of blue to red beds is 3 : 5

 What fraction of the beads are blue?

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |

7. Paul, Liam and Drake shared some money in the ratio 2 : 4 : 5

 Drake got £21 more than Paul.

How much did Liam get?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

8. A bag contains black and white cubes in the ratio 3 : 7

 I add 8 black cubes to the bag.

 Now the ratio of black to white cubes is 5 : 7

 How many cubes are there in the bag?

8

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Black |  |  |  |  |  |  |  |
| White |  |  |  |  |  |  |  |

9. Two numbers are in the ratio 1 : 4 and their difference is 33.

 What are the numbers?

|  |  |  |  |
| --- | --- | --- | --- |
|  |  |  |  |
|  |  |  |  |

**Problem Solving – Bar Model EXTENSION**

1. At a pantomime, 60% of the audience are children.

¼ of the remaining audience are men.

The rest of the audience are women.

 There are 45 women in the audience.

 How many people are at the pantomime?

2. There are 120 bricks in a box.

 The bricks are red or blue or green.

 1/3 of the bricks are red.

¼ of the bricks are blue.

 Work out the number of green bricks in the box.

3. Bill gives away £20 000 to help animals.

 He gives 20% of £20 000 to a donkey sanctuary.

He shares the rest of the £20 000 between a dogs’ home and a cats’ home in the ratio 3 : 2

 How much money does Bill give to the cats’ home?

4. One day a supermarket has 8420 customers.

 65% of the customers pay with a debit card.

 1/5 of the customers pay with a credit card.

 The rest of the customers pay with cash.

 Work out how many customers pay with cash.

5. Mr Mason asks 240 Year 11 students what they want to do next year.

 15% of the students want to go to college.

 ¾ of the students want to stay at school.

 The rest of the students do not know.

 Work out the number of students who do not know.