

# Number Nest Weekly Challenge

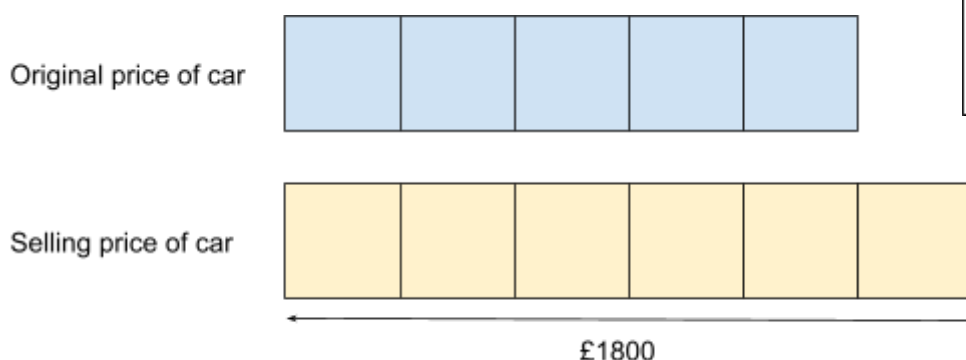


## Warm up

1. What is  $\frac{7}{8} \times \frac{8}{7}$ ? **1**
2. What is  $\frac{7}{8} \div \frac{8}{7}$ ?  **$\frac{49}{64}$**
3. What is  $6\frac{3}{4} \div 3$ ?  **$2\frac{1}{4}$  or  $\frac{9}{4}$**
4. What is  $13.64 \div 44$ ? **0.31**

## Activity

1. Charlie sells his car for £1800. If he's made a 20% profit, how much did the car cost originally?



Hint: profit is the amount of money gained.

**This diagram shows that Charlie gained a fifth of the original price of car i.e. one "box"**

**We can work out the value of one box as we know that six boxes is worth £1800, so one box =  $1800 \div 6 = £300$**

**The original cost of car is five boxes i.e.  $1800 - 300 = £1500$**

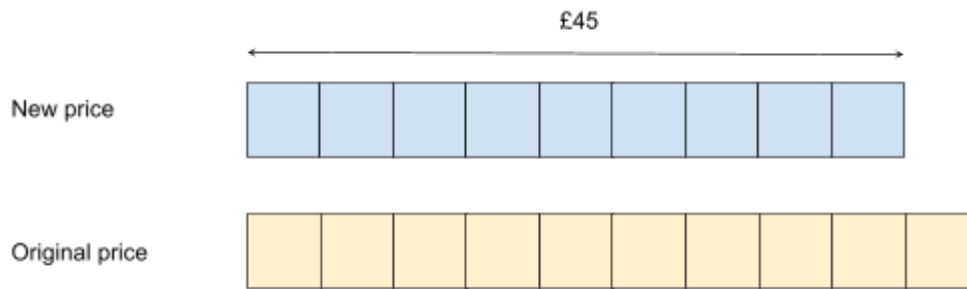
2. There are 1800 pupils at school. 21% of them say that they like only Marmite, 14% say that they only like strawberry jam and 70 pupils like both Marmite and strawberry jam. How many pupils don't like either?

**Pupils who only like marmite:  $1800 \times 0.21 = 378$**

**Pupils who only like strawberry jam =  $1800 \times 0.14 = 252$**

**Pupils who don't like either =  $1800 - 378 - 252 - 70 = 1100$**

3. A clothing store is on a 10% sale. Sunny buys a jacket for £45. What was the price of the jacket originally?



**9 boxes = 90% = £45**

**So 1 box = 10% = £5**

**Original price = 10 boxes = 100% so is equal to £50.**

4. Muhammad stores £1000 in a bank with a 2% simple interest rate. What amount of money does he have in the bank after a year? (bonus: How much does he have after 2 years?)

**Muhammad will gain 2% more money every year, which is  $1000 \times 0.02 = £20$ . So he has £1020 in the bank after one year.**

**After 2 years, Muhammad will have  $1000 + 20 \times 2 = £1040$  in the bank.**

Simple interest: banks will pay you interest when you deposit money. The interest rate tells you what percentage of money you will gain annually. The interest is only applied to the original amount of money in the bank.

### Puzzle

Connect the boxes on the left to the correct box on the right:

