Exercise 1

1. For each of the following, write the fraction that is shaded:
   (a)  
   (b)  
   (c)  
   (d)  
   (e)  
   (f)  
   (g)  
   (h)  
   (i)  
   (j)  

2. For each shape in question 1, write the fraction that is **not** shaded.

3. Look at the pictures shown below.

   (a) How many vehicles in total are in the picture?
   (b) Write down what fraction of the vehicles are:
       (i) cars  (ii) buses  (iii) trucks  (iv) not trucks.

4. (a) (i) Draw a rectangle in your jotter measuring 6 boxes by 2 boxes.
     (ii) Shade or colour in $\frac{1}{3}$ (one box for every three).
     (b) Repeat part (a), except shade $\frac{1}{4}$ of the rectangle.

5. What fraction of rooms in your house have a toilet in them?
Exercise 2

1. Divide the top line and bottom line of each fraction by 2, to simplify each :
   (a) \( \frac{2}{4} \)  (b) \( \frac{6}{8} \)  (c) \( \frac{10}{20} \)  (d) \( \frac{6}{12} \)  (e) \( \frac{32}{42} \)  (f) \( \frac{100}{102} \)

2. Divide the top line and bottom line of each fraction by 3, to simplify each :
   (a) \( \frac{3}{6} \)  (b) \( \frac{9}{12} \)  (c) \( \frac{15}{21} \)  (d) \( \frac{33}{36} \)  (e) \( \frac{60}{63} \)  (f) \( \frac{12}{45} \)

3. For each of the following fractions, divide the numerator and the denominator by a number to simplify the fraction :
   (a) \( \frac{5}{10} \)  (b) \( \frac{3}{18} \)  (c) \( \frac{4}{20} \)  (d) \( \frac{2}{30} \)  (e) \( \frac{3}{21} \)  (f) \( \frac{6}{18} \)
   (g) \( \frac{10}{30} \)  (h) \( \frac{2}{200} \)  (i) \( \frac{12}{15} \)  (j) \( \frac{3}{36} \)  (k) \( \frac{2}{50} \)  (l) \( \frac{5}{120} \)

4. (Harder) Simplify :
   (a) \( \frac{7}{35} \)  (b) \( \frac{11}{77} \)  (c) \( \frac{18}{21} \)  (d) \( \frac{7}{63} \)  (e) \( \frac{13}{39} \)  (f) \( \frac{17}{51} \)

Exercise 3

1. Find :
   (a) \( \frac{1}{2} \) of 20  (b) \( \frac{1}{3} \) of 15  (c) \( \frac{1}{2} \) of 50
   (d) \( \frac{1}{3} \) of 27  (e) \( \frac{1}{4} \) of 20  (f) \( \frac{1}{5} \) of 55
   (g) \( \frac{1}{2} \) of 42  (h) \( \frac{1}{5} \) of 60  (i) \( \frac{1}{6} \) of 42

2. Find :
   (a) \( \frac{1}{6} \) of 54  (b) \( \frac{1}{7} \) of 49  (c) \( \frac{1}{8} \) of 40
   (d) \( \frac{1}{9} \) of 54  (e) \( \frac{1}{7} \) of 91  (f) \( \frac{1}{8} \) of 72
   (g) \( \frac{1}{10} \) of 30  (h) \( \frac{1}{10} \) of 900  (i) \( \frac{1}{15} \) of 30

3. (a) There are 60 people on an aeroplane. \( \frac{1}{3} \) of them are children.
   How many children are on the aeroplane ?

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(b) There are 32 trees in an orchard.

\[ \frac{1}{4} \text{ of the trees are apple trees.} \]

(i) How many trees are apple trees?

(ii) How many trees are not apple trees?

4. **One fifth** of the thirty children on a bus are girls.

(a) How many girls are in the group?

(b) How many boys are in the group?

5. A drinks cooler contains 36 bottles.

A third of the bottles are Cola.

A quarter of the bottles are Orange.

A sixth of the bottles are Irn Bru.

A ninth of the bottles are water.

The rest are beer.

Find, the number of bottles of :-

(a) Cola

(b) Orange

(c) Irn Bru

(d) beer.

**Exercise 4**

1. Without using a calculator, do the following :-

(a) \[ \frac{2}{3} \text{ of } 15 = (15 \div 3) \Rightarrow 5 \times 2 = \ldots \]

(b) \[ \frac{2}{3} \text{ of } 27 \]

(c) \[ \frac{3}{4} \text{ of } 24 \]

(d) \[ \frac{3}{4} \text{ of } 36 \]

(e) \[ \frac{2}{5} \text{ of } 20 \]

(f) \[ \frac{3}{5} \text{ of } 40 \]

(g) \[ \frac{2}{7} \text{ of } 21 \]

(h) \[ \frac{4}{5} \text{ of } 60 \]

(i) \[ \frac{5}{6} \text{ of } 30 \]

(j) \[ \frac{7}{9} \text{ of } 81 \]

2. A computer room contained 32 computers.

\[ \frac{3}{4} \text{ of the computers were shut down.} \]

How many computers were shut down?

3. At the school raffle 95 tickets were sold.

Two fifths of the tickets won a prize.

How many tickets did **not** win?
Revision Exercise

1. For each shape, say what fraction has been shaded:–
   (a)  
   (b)  
   (c)  

2. For each shape in question 1, write down the fraction not shaded.

3. Copy and complete:–
   (a)  \( \frac{1}{2} = ? \)  
   (b)  \( \frac{2}{3} = \frac{6}{?} \)  
   (c)  \( \frac{6}{11} = \frac{?}{77} \)  

4. Write an equivalent fraction to:–
   (a)  \( \frac{1}{2} \)  
   (b)  \( \frac{1}{5} \)  
   (c)  \( \frac{2}{3} \)  

5. Write each of these fractions in their simplest form:–
   (a)  \( \frac{8}{16} \)  
   (b)  \( \frac{3}{15} \)  
   (c)  \( \frac{7}{21} \)  
   (d)  \( \frac{11}{55} \)  
   (e)  \( \frac{14}{42} \)  
   (f)  \( \frac{10}{200} \)  

6. Find:–
   (a)  \( \frac{1}{2} \) of £30  
   (b)  \( \frac{1}{3} \) of 60 kg  
   (c)  \( \frac{1}{4} \) of 48 ml  
   (d)  \( \frac{1}{5} \) of £25  
   (e)  \( \frac{1}{7} \) of $49  
   (f)  \( \frac{1}{12} \) of 24 g  

7. Angela had £24 in her bank.
   She spent half of her money paying her mobile phone bill and a quarter of her money on paying bank charges.
   (a) How much was Angela’s phone bill?  
   (b) How much did she pay in bank charges?  
   (c) How much does she have left in her account?  

8. Find:–
   (a)  \( \frac{2}{3} \) of £24  
   (b)  \( \frac{3}{4} \) of 36 litres  
   (c)  \( \frac{5}{8} \) of 56 p  

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