Instructions

- Use **black** ink or ball-point pen.
- Answer all questions.
- Answer the questions in the spaces provided
  - *there may be more space than you need.*
- Diagrams are **NOT** accurately drawn, unless otherwise indicated.
- You must **show all your working out**.

Information

- The marks for each question are shown in brackets
  - *use this as a guide as to how much time to spend on each question.*

Advice

- Read each question carefully before you start to answer it.
- Keep an eye on the time.
- Try to answer every question.
- Check your answers if you have time at the end
1 In a bag there are blue sweets and red sweets. The ratio of blue sweets to red sweets is 5:3

What fraction of the sweets are blue?

\[
\begin{align*}
5 \text{ Parts Blue} \\
8 \text{ Parts in Total (5+3)}
\end{align*}
\]

\[
\frac{5}{8}
\]

(Total for question 1 is 2 marks)

2 In a bag there are blue sweets and red sweets. The ratio of blue sweets to red sweets is 2:7

What fraction of the sweets are red?

\[
\begin{align*}
7 \text{ parts red} \\
9 \text{ parts in total}
\end{align*}
\]

\[
\frac{7}{9}
\]

(Total for question 2 is 2 marks)

3 In a bag there are blue sweets and red sweets. The ratio of blue sweets to red sweets is 4:9

What fraction of the sweets are blue?

\[
\begin{align*}
4 \text{ parts blue} \\
13 \text{ parts in total}
\end{align*}
\]

\[
\frac{4}{13}
\]

(Total for question 3 is 2 marks)
4 In a bag there are blue sweets, red sweets and green sweets. The ratio of blue sweets to red sweets to green sweets is 5:3:2.

What fraction of the sweets are green?

\[
\frac{2}{10} \text{ or } \frac{1}{5}
\]

\[
\frac{1}{5}
\]

(Total for question 4 is 2 marks)

5 In a bag there are blue sweets, red sweets and green sweets. The ratio of blue sweets to red sweets to green sweets is 2:4:5.

What fraction of the sweets are red?

\[
\frac{4}{11}
\]

(Total for question 5 is 2 marks)

6 In a bag there are blue sweets, red sweets and green sweets. The ratio of blue sweets to red sweets to green sweets is 6:9:4.

What fraction of the sweets are blue?

\[
\frac{6}{19}
\]

(Total for question 6 is 2 marks)
7 In a bag there are only red sweets and yellow sweets. \( \frac{2}{3} \) of the sweets are red.

Write down the ratio of red sweets to yellow sweets?

\[
\frac{2}{3} \text{ Red} \quad \frac{1}{3} \text{ Yellow}
\]

2 : 1

(Total for question 7 is 2 marks)

8 In a bag there are only red sweets and yellow sweets. \( \frac{3}{5} \) of the sweets are red.

Write down the ratio of red sweets to yellow sweets?

\[
\frac{3}{5} \text{ Red} \quad \frac{2}{5} \text{ Yellow}
\]

3 : 2

(Total for question 8 is 2 marks)

9 In a bag there are only blue sweets and green sweets. \( \frac{5}{6} \) of the sweets are green.

Write down the ratio of blue sweets to green sweets?

\[
\frac{5}{6} \text{ Green} \quad \frac{1}{6} \text{ Blue}
\]

Blue to Green

1 : 5

(Total for question 9 is 2 marks)
An artist is making orange paint by mixing red paint \((x \text{ ml})\) and yellow paint \((y \text{ ml})\) in the ratio 8:11.

(a) Use this information to draw a graph showing the relationship between the amount of red paint and the amount of yellow paint used.

<table>
<thead>
<tr>
<th>(x)</th>
<th>8</th>
<th>16</th>
<th>24</th>
<th>32</th>
<th>40</th>
</tr>
</thead>
<tbody>
<tr>
<td>(y)</td>
<td>11</td>
<td>22</td>
<td>33</td>
<td>44</td>
<td>55</td>
</tr>
</tbody>
</table>

(b) The artist decides to use 50ml of yellow paint. Use your graph to work out how much red paint he should use.

\[
\frac{36.5 \text{ ml}}{36 - 3.7} \times 2
\]

(Total for question 10 is 4 marks)
An baker makes bread using the ratio of flour ($y$ cups) to water ($x$ cups) of 5:3.

(a) Use this information to draw a graph showing the relationship between the amount of flour and the amount water used to make bread.

\[
\begin{array}{c|c|c|c|c|c|c}
  x & 3 & 6 & 9 & 12 & 30 \\
  y & 5 & 10 & 15 & 20 & 50 \\
\end{array}
\]

(b) The baker is going to use 30 cups of flour. Use your graph to work out how much water the baker should use.

\[\text{18 cups}\]

(Total for question 11 is 4 marks)
12 In a cinema the ratio of adults to children is 3:1 \( \text{ (4 parts) } \)
The ratio of boys to girls is 3:2 \( \text{ (5 parts) } \)

What fraction of all the people in the cinema are girls?

\[
\frac{3}{4} \text{ Adults} \quad \frac{1}{4} \text{ Children} \\
\begin{array}{c}
\frac{3}{5} \text{ Boys} \\
\frac{2}{5} \text{ Girls}
\end{array}
\]

\[
\frac{2}{5} \times \frac{1}{4} = \frac{2}{20} = \frac{1}{10}
\]

\[
\frac{1}{10}
\]

(Total for question 12 is 3 marks)

13 On a school trip the ratio of staff to students is 1:10 \( \text{ (11 parts) } \)
All of the students are from either year 7 or year 8. The ratio of year 7 students to year 8 students is 3:2 \( \text{ (5 parts) } \)

What fraction of all the people on the trip are year 7 students?

\[
\frac{1}{11} \text{ STAFF} \quad \frac{10}{11} \text{ STUDENTS} \\
\begin{array}{c}
\frac{3}{5} \text{ YEAR 7} \\
\frac{2}{5} \text{ YEAR 8}
\end{array}
\]

\[
\frac{3}{5} \times \frac{10}{11} = \frac{30}{55} = \frac{6}{11}
\]

\[
\frac{6}{11}
\]

(Total for question 13 is 3 marks)
14 In a theatre the ratio of adults to children is 7:3. The ratio of boys to girls is 3:2.

What percentage of all the people in the cinema are girls?

\[
\frac{7}{10} \text{ Adults} \quad \frac{3}{10} \text{ Children} \\
\frac{3}{5} \text{ Boys} \quad \frac{2}{5} \text{ Girls}
\]

\[
\frac{2}{5} \times \frac{3}{10} = \frac{6}{50} = \frac{12}{100} = 12\% \\
\left[ \frac{2}{5} \times \frac{3}{10} \right]
\]

12\% (Total for question 14 is 3 marks)

15 In a company the ratio of men to women is 2:3. 30% of the women are under the age of 30.

What fraction of all the people in the company are women under the age of 30?

\[
\frac{2}{5} \text{ Men} \quad \frac{3}{5} \text{ Women}
\]

\[
\frac{3}{10} \text{ or } \frac{3}{5}
\]

\[
\frac{3}{10} \times \frac{3}{5} = \frac{9}{50}
\]

9/50 (Total for question 15 is 3 marks)