Name: _____

GCSE (1 – 9)

Ratio Fraction Problems

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?

5   Parts Blue
8   Parts in Total (5+3)

$\frac{5}{8}$

....

(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?

7   parts red
9   parts in total

$7/9$

....

(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?

4   parts blue
13 parts in total

$\frac{4}{13}$

....

(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
B R G

What fraction of the sweets are green?

2 parts green

10 parts in total

$\frac{2}{10}$ 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
B R G

What fraction of the sweets are red?

4 parts red

11 parts in total

$\frac{4}{11}$
....

(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
B R G

What fraction of the sweets are blue?

6 parts blue

19 parts in total

$\frac{6}{19}$
....

(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?

$\frac{2}{3}$ Red $\qquad$ $\frac{1}{3}$ Yellow

$2 : 1$

$\underline{2 : 1}$

(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?

$\frac{3}{5}$ Red $\qquad$ $\frac{2}{5}$ Yellow

$3 : 2$

$\underline{3 : 2}$

(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?

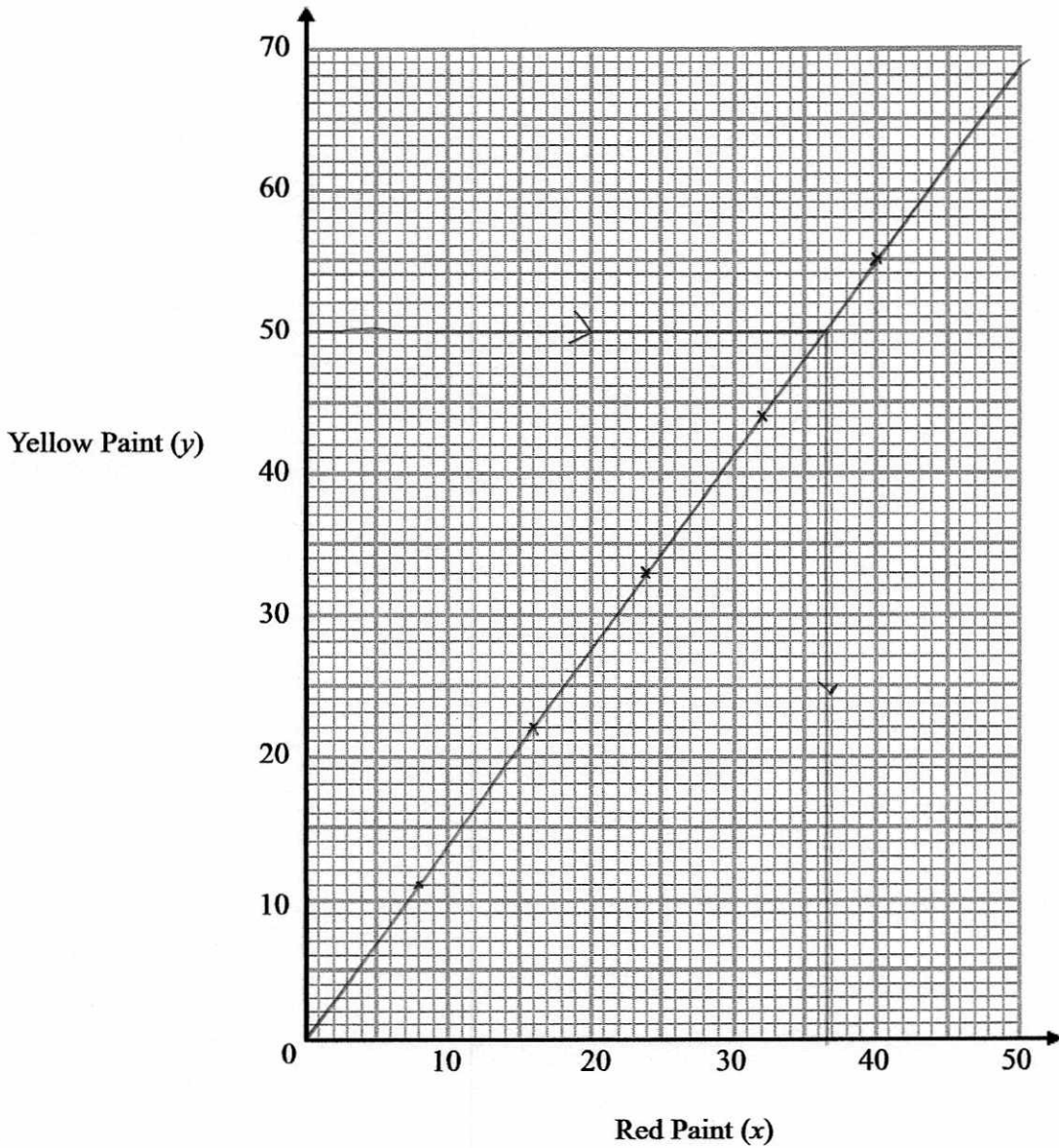$\frac{5}{6}$ green $\qquad$ $\frac{1}{6}$ Blue

Blue to Green

$1 : 5$

$\underline{1 : 5}$

(Total for question 9 is 2 marks)

10 An artist is making orange paint by mixing red paint (x ml) and yellow paint (y 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.

x	8	16	24	32	40
y	11	22	33	44	55

Yellow Paint (y)

Red Paint (x)

(2)

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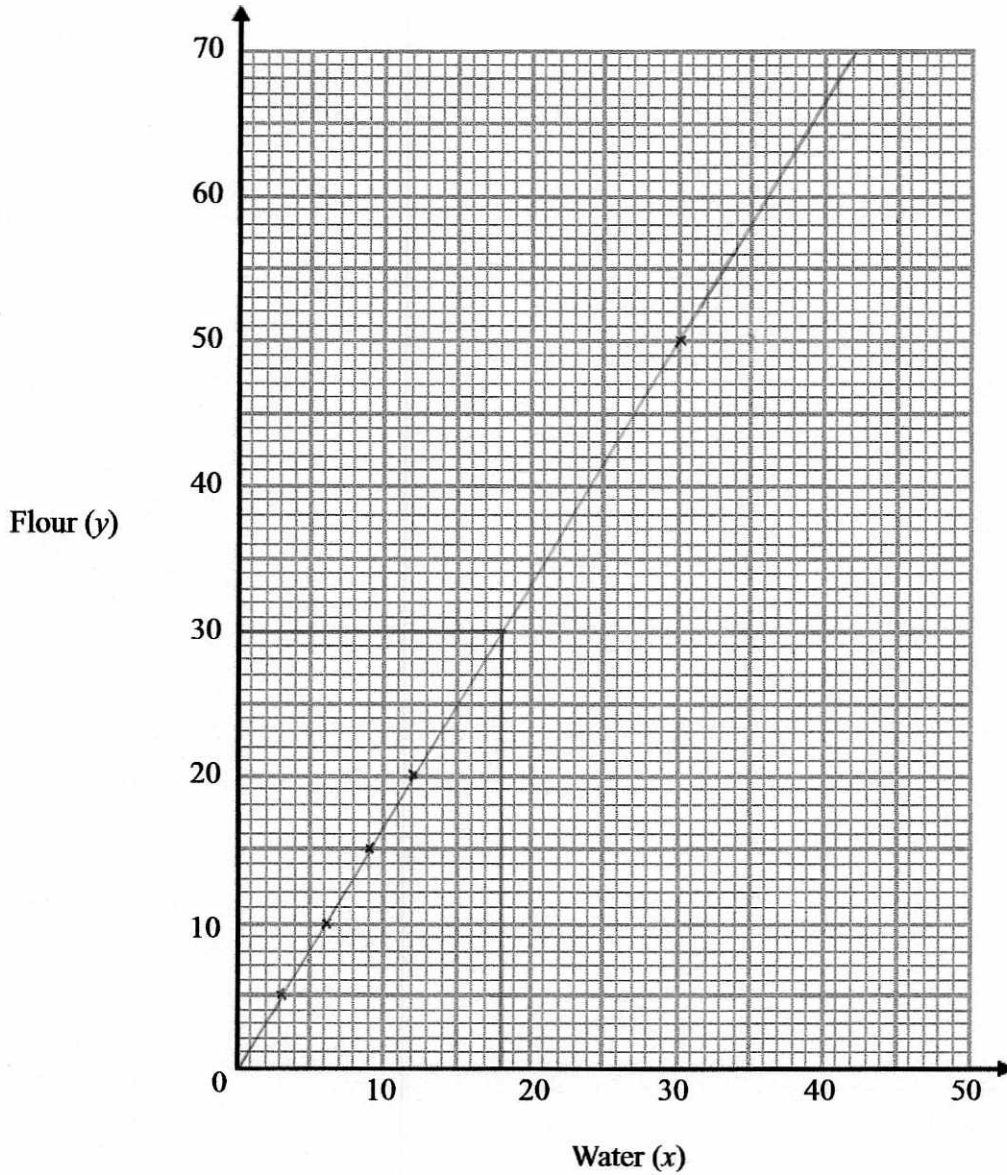
36.5 ml

(36 – 37) (2)

(Total for question 10 is 4 marks)

11 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.

x	3	6	9	12	30
y	5	10	15	20	50

Flour (*y*)

Water (*x*)

(2)
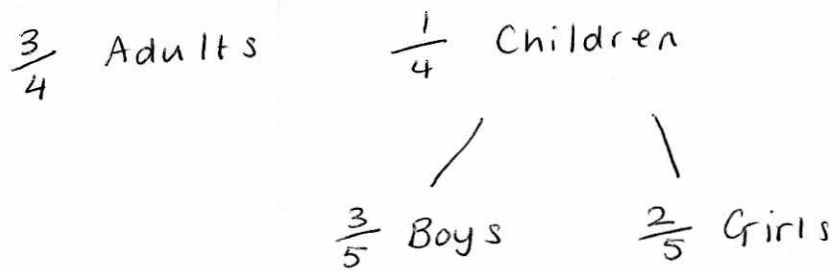
(b) The baker is going to use 30 cups of flour. Use your graph to work out how much water the baker should use.

18 cups

(2)

(Total for question 11 is 4 marks)

12 In a cinema the ratio of adults to children is 3:1   *(4 PARTS)*
The ratio of boys to girls is 3:2   *(5 PARTS)*

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

$\frac{3}{4}$ Adults $\frac{1}{4}$ Children

$\frac{3}{5}$ Boys $\frac{2}{5}$ Girls
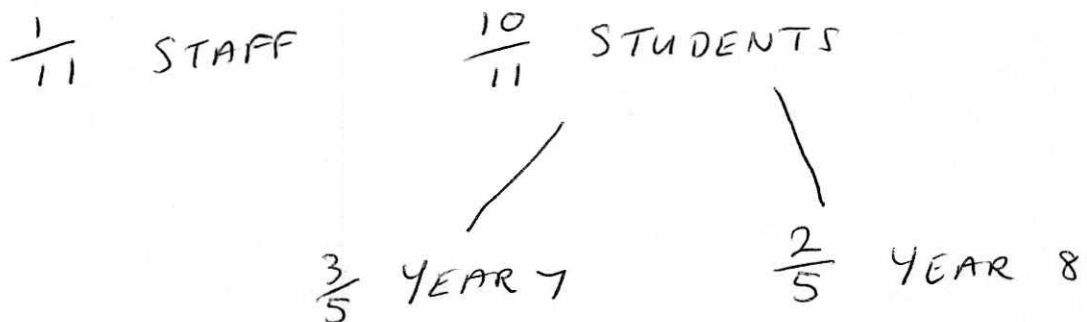
$\frac{2}{5}$ of $\frac{1}{4}$

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

$\frac{1}{10}$

(Total for question 12 is 3 marks)

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13 On a school trip the ratio of staff to students is 1:10   *(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

(5 PARTS)

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

$\frac{1}{11}$ STAFF $\frac{10}{11}$ STUDENTS

$\frac{3}{5}$ YEAR 7 $\frac{2}{5}$ YEAR 8
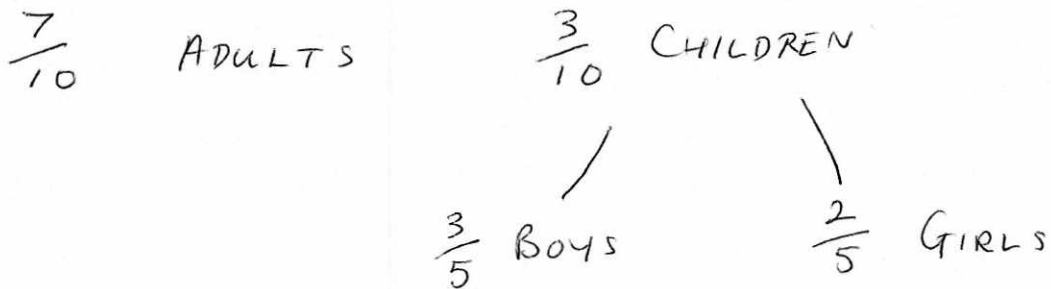
$\frac{3}{5}$ of $\frac{10}{11}$

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

$\frac{6}{11}$

(Total for question 13 is 3 marks)

14 In a theatre the ratio of adults to children is 7:3 10 PARTS
The ratio of boys to girls is 3:2 5 PARTS

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

$\frac{7}{10}$ ADULTS $\frac{3}{10}$ CHILDREN

$\frac{3}{5}$ BOYS $\frac{2}{5}$ GIRLS

$\frac{2}{5}$ of $\frac{3}{10}$ = $\frac{6}{50}$ = $\frac{12}{100}$ = 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 $(5$ PARTS$)$
30% of the women are under the age of 30.
  $\times \frac{3}{10}$
What fraction of all the people in the company are women under the age of 30?

$\frac{2}{5}$ MEN $\frac{3}{5}$ WOMEN

$\frac{3}{10}$ of $\frac{3}{5}$

$\frac{3}{10} \times \frac{3}{5}$ = $\frac{9}{50}$

$\frac{9}{50}$ ....

(Total for question 15 is 3 marks)