Ratio 1 (H & F)

A collection of 9-1 Maths GCSE Sample and Specimen questions from AQA, OCR, Pearson-Edexcel and WJEC Eduqas.

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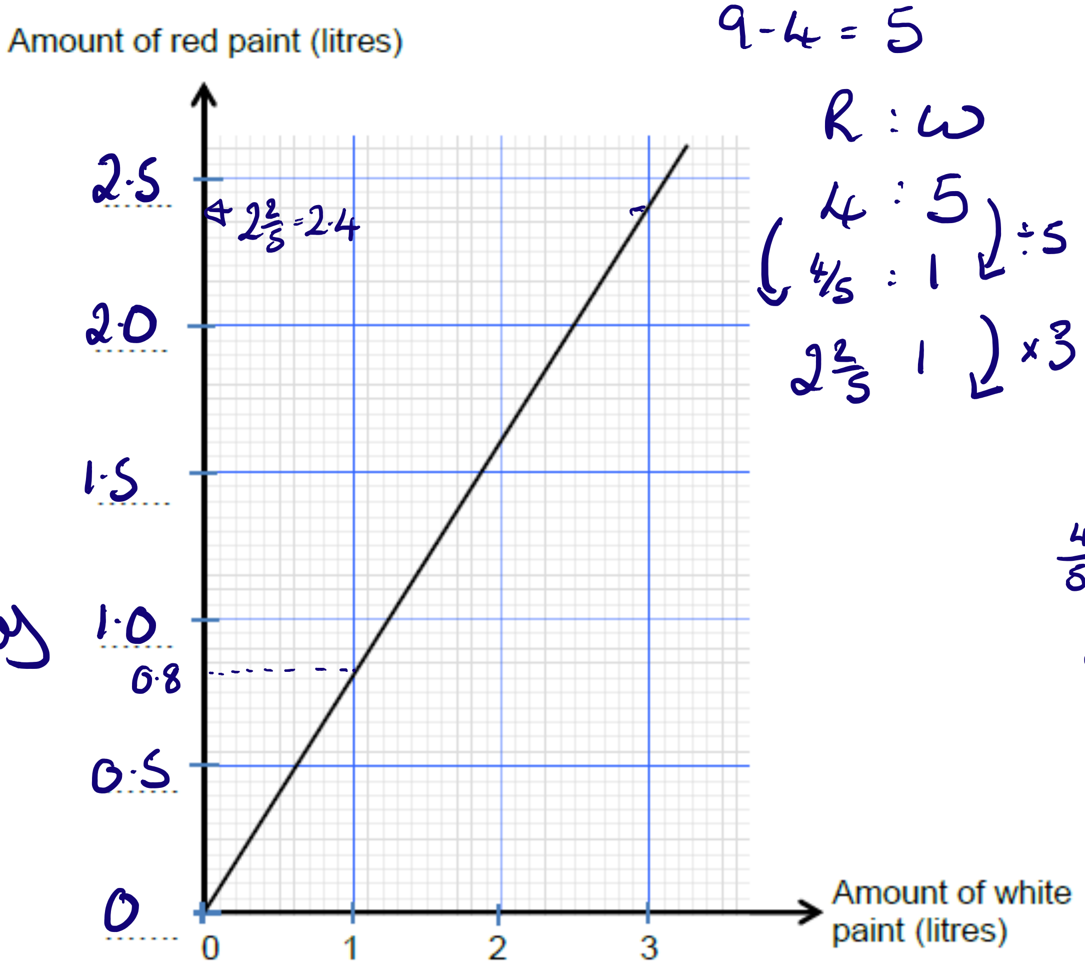
Total Marks:	

1. Cherry Blossom paint is made by mixing red and white paint in a certain ratio.

   4 litres of red paint is used to make 9 litres of Cherry Blossom paint.

   The diagram below shows the relationship between the amount of red paint and the amount of white paint needed to make Cherry Blossom paint.



   Write down the correct scale on the 'Amount of red paint (litres)' axis.

   You must put a value on each of the dotted lines on the axis.

   You must show all your working to support your answer.

[4]

2. White paint costs £2.80 per litre.

Blue paint costs £3.50 per litre.

White paint and blue paint are mixed in the ratio 3 : 2

Work out the cost of 18 litres of the mixture.

W B
£2·80 £3·50
3 : 2
18 ÷ 5 = 3·6 litres

White = 3 × 3·6 = 10·8 litres
Cost = 10·8 × 2·80
= £30·24
Blue = 2 × 3·6 = 7·2 litres
Cost = 7·2 × 3·50
= £25·20

Total cost = 30·24 + 25·20 = £105·84 [4]

3. In a company, the ratio of the number of men to the number of women is 3:2

40% of the men are under the age of 25

10% of the women are under the age of 25

What percentage of all the people in the company are under the age of 25?

M : W
3 : 2
40% under 25
10% under 25

m : w ← same as 3:2
60 : 40
40% of 60 = 24
10% of 40 = 4
} = 28

28%

.....% [4]

4. Peter makes a large amount of pink paint by mixing red and white paint in the ratio 2 : 3.

Red paint costs £80 per 10 litres. 80 ÷ 10 = £8 per litre

White paint costs £5 per 10 litres. 5 ÷ 10 = 50p per litre

Peter sells his pink paint in 10-litre tins for £60 per tin.

Calculate how much profit he makes for each tin he sells.

R : W
2 : 3
10 litres ÷ 5 = 2

Red = 2 × 2 = 4 litres
White = 3 × 2 = 6 litres

cost of red : 4 × 8 = £32
white = 6 × 50p = £3
35

Profit = 60 − 35

£ 25 [5]

5. Frank, Mary and Seth shared some sweets in the ratio 4 : 5 : 7

Seth got 18 more sweets than Frank.

Work out the total number of sweets they shared.

F M S
4 5 7 = 16

difference = 3 parts = 18 more sweets 18 ÷ 3 = 6

16 x 6 = 96

96

..... [3]

6. At a school

number of boys : number of girls = 9 : 7

There are 116 more boys than girls.

Work out the total number of students at the school.

B : G 9 + 7 = 16

9 : 7

difference = 2 parts = 116

1 part = 58

Total = 16 x 58

= 928

[3]

7. On a farm

the number of cows and the number of sheep are in the ratio 6 : 5

the number of sheep and the number of pigs are in the ratio 2 : 1

The total number of cows, sheep and pigs on the farm is 189

How many sheep are there on the farm?

C : S S : P

2 x 6 : 5 2 : 1 x 5

12 : 10 10 : 5

C : S : P

12 : 10 : 5 = 27

189 ÷ 27 = 7

10 x 7 = 70 sheep

[3]

8. The ratio of the number of boys to the number of girls in a school is 4:5

There are 95 girls in the school.

Work out the total number of students in the school.

B : G 95 ÷ 5 = 19

4 : 5 4 x 19 = 76

95

Total = 76 + 95

171

..... [3]

9. There are between 25 and 35 students in a class.

   The ratio of boys to girls is 4 : 7

   How many students are in the class?

B : G
4 : 7 = 11 ×
8 : 14 = 22 ×
12 21 = 33 ✓
16 : 28 = 44 ×

33

[2]

10. Here are two piles of the same type of paper.

    Each sheet of paper is $\frac{7}{1000}$ cm thick.

    The taller pile is $10\frac{1}{2}$ cm high.

3 : 2
10·5 : 7

10·5 ÷ 3 =
3·5
3·5 × 2 = 7

height of taller pile : height of shorter pile = 3 : 2

Work out the number of sheets of paper in the shorter pile.

7cm ÷ $\frac{7}{1000}$

= $\cancel{7} \times \frac{1000}{\cancel{7}}$ = 1000 sheets

[3]

CREDITS AND NOTES

Q	Awarding Body	Q	Awarding Body	Q	Awarding Body
1	WJEC Eduqas	11		21	
2	AQA	12		22	
3	Pearson Edexcel	13		23	
4	OCR	14		24	
5	Pearson Edexcel	15		25	
6	AQA	16		26	
7	Pearson Edexcel	17		27	
8	Pearson Edexcel	18		28	
9	AQA	19			
10	AQA	20			

Notes:

These questions have been retyped from the original sample/specimen assessment materials and whilst every effort has been made to ensure there are no errors, any that do appear are mine and not the exam board s (similarly any errors I have corrected from the originals are also my corrections and not theirs!).

Please also note that the layout in terms of fonts, answer lines and space given to each question does not reflect the actual papers to save space.

These questions have been collated by me as the basis for a GCSE working party set up by the GLOW maths hub - if you want to get involved please get in touch. The objective is to provide support to fellow teachers and to give you a flavour of how different topics "could" be examined. They should not be used to form a decision as to which board to use. There is no guarantee that a topic will or won't appear in the "live" papers from a specific exam board or that examination of a topic will be as shown in these questions.

Links:

AQA http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300

OCR http://ocr.org.uk/gcsemaths

Pearson Edexcel http://qualifications.pearson.com/en/qualifications/edexcel-gcses/mathematics-2015.html

WJEC Eduqas http://www.eduqas.co.uk/qualifications/mathematics/gcse/

Contents:

This version contains questions from:

AQA – Sample Assessment Material, Practice set 1 and Practice set 2

OCR – Sample Assessment Material and Practice set 1

Pearson Edexcel – Sample Assessment Material, Specimen set 1 and Specimen set 2

WJEC Eduqas – Sample Assessment Material