3.4 Ratio Problems with Totals and Differences: 1-hour Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Aisha, Zain and Femi share 64 sweets in the ratio 3 : 2 : 3. How much does each person get?

(3)

2 Orange juice and lemonade are mixed in the ratio 1 : 3 to make punch. How many ml of lemonade are needed to mix with 100 ml of orange juice?

(2)

3 The ratio of boys to girls in a club is 5 : 6. There are 10 boys. How many girls are there?

(3)

4 The ratio of red to blue counters in a bag is 3 : 7. There are 24 more blue than red. How many red and blue are there altogether?

(4)

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5 Orla's fruit squash is made with juice and water in the ratio 3 : 7. Grace's squash is made with juice and water in the ratio 4 : 3. Whose squash is stronger (has the greater fraction of juice)? Show your working.

(3)

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6 Red and white are mixed in the ratio 5 : 3 to make paint. Work out how much red is in 80 litres of paint.

(3)

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7 A recipe uses milk and water in the ratio 3 : 5. If you have 2 litres of milk, how much water do you need to keep the same ratio?

Calculate the required volume of water in litres. **(2)**

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8 Maya, Noah and Tom share 150 sweets in the ratio 2 : 3 : 1. How much does each person get?

(3)

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9 Maya and Hamza share £264 in the ratio 7 : 5. How much does each person get?

(3)

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10 The ratio of adults to children at a concert is 6 : 7. There are 5 more children than adults. How many adults and children are there altogether?

(4)

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11 Red and blue paint are mixed in the ratio 3 : 8. What fraction of the mixture is red?

(2)

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12 Quinn and Priya share £296 in the ratio 3 : 5. How much does each person get?

(3)

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13 Jack's fruit squash is made with juice and water in the ratio 5 : 4. Aisha's squash is made with juice and water in the ratio 4 : 6. Whose squash is stronger (has the greater fraction of juice)? Show your working.

(3)

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14 Orange juice and lemonade are mixed in the ratio 4 : 3 to make punch. How many ml of lemonade are needed to mix with 400 ml of orange juice?

(2)

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15 Red and white are mixed in the ratio 3 : 2 to make paint. Sam has 6 litres of red and 10 litres of white. What is the greatest amount of paint he can make?

(4)

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16 Three numbers are in the ratio 1 : 4 : 5. The difference between the largest and the smallest is 36. Find the three numbers.

Calculate the three numbers. **(2)**

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17 Simplify the ratio 32 : 48.

(1)

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Mark scheme · 3.4 Ratio Problems with Totals and Differences: 1-hour Pack

Question 1

3 + 2 + 3 = 8 parts	M1
64 ÷ 8	M1
Aisha 24, Zain 16, Femi 24 cao	A1

Answer: **Aisha 24, Zain 16, Femi 24**

Question 2

100 ÷ 1 = 100	M1
300 ml cao	A1

Answer: **300 ml**

Question 3

10 ÷ 5 = 2	M1
2 x 6	M1
12 cao	A1

Answer: **12**

Question 4

difference in parts 4	M1
24 ÷ 4 = 6	M1
10 x 6	M1
60 cao	A1

Answer: **60**

Question 5

3/10 or a decimal for one squash	M1
4/7 for the other, compared	M1
Grace's squash is stronger	A1

Answer: **Grace's squash is stronger**

Question 6

5 + 3 = 8 parts	M1
80 ÷ 8 x 5	M1
50 litres cao	A1

Answer: **50 litres**

Question 7

method: one part = milk amount divided by 3 or equivalent	M1
10/3 or 3 1/3 litres cao	A1

Answer: **10/3**

Question 8

2 + 3 + 1 = 6 parts	M1
150 ÷ 6 = 25	M1
Maya 50, Noah 75, Tom 25 cao	A1

Answer: **Maya 50, Noah 75, Tom 25**

Question 9

7 + 5 = 12 parts	M1
264 ÷ 12 = 22	M1
Maya £154, Hamza £110 cao	A1

Answer: **Maya £154, Hamza £110**

Question 10

difference in parts 1	M1
5 ÷ 1 = 5	M1
13 x 5	M1
65 cao	A1

Answer: **65**

Question 11

3 + 8 = 11 parts	M1
3/11 cao	A1

Answer: **3/11**

Question 12

3 + 5 = 8 parts	M1
296 ÷ 8 = 37	M1
Quinn £111, Priya £185 cao	A1

Answer: **Quinn £111, Priya £185**

Question 13

5/9 or a decimal for one squash	M1
4/10 for the other, compared	M1
Jack's squash is stronger	A1

Answer: **Jack's squash is stronger**

Question 14

400 ÷ 4 = 100	M1
300 ml cao	A1

Answer: **300 ml**

Question 15

red supports 6 ÷ 3 = 2 units	M1
white supports 10 ÷ 2 = 5 units	M1
uses the smaller: 2 units x 5	M1
10 litres cao	A1

Answer: **10 litres**

Question 16

method: difference in parts = 5 - 1 = 4 so one part = 36 / 4 = 9	M1
9, 36, 45 cao	A1

Answer: **9, 36, 45**

Question 17

2 : 3 cao	B1

Answer: **2 : 3**

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