3.2 Writing and Simplifying Ratios: Test Pack

Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write each pair of quantities as a ratio in simplest form.

(a) 8 apples to 12 apples. **(1)**

(b) 6 pens to 15 pencils. **(1)**

(c) 10 red balloons to 4 blue balloons. **(1)**

(d) 21 boys to 14 girls. **(1)**

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2 Which of these ratios is already written in its simplest form?

- ☐ A) 5:8
- ☐ B) 4:6
- ☐ C) 9:12
- ☐ D) 10:15

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3 Three of these four ratios are equivalent to 4 : 6. Which ratio is NOT equivalent to 4 : 6?

- ☐ A) 2:3
- ☐ B) 8:12
- ☐ C) 10:15
- ☐ D) 12:20

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4 Simplify each ratio fully.

(a) 12 : 18 : 30 **(1)**

(b) 24 : 40 : 16 **(1)**

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5 Write each ratio using whole numbers in its simplest form.

(a) 1/2 : 3/4 **(1)**

(b) 2/3 : 1/6 **(1)**

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6 Aisha says, "3 : 5 is the same as 6 : 8, because I added 3 to both numbers." Is Aisha correct? Show working to support your answer.

(2)

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7 Dev's fruit squash is made with juice and water in the ratio 3 : 8. Ben's squash is made with juice and water in the ratio 3 : 5. Whose squash is stronger (has the greater fraction of juice)? Show your working.

(3)

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8 Isla's fruit squash is made with juice and water in the ratio 4 : 4. Ravi's squash is made with juice and water in the ratio 1 : 6. Whose squash is stronger (has the greater fraction of juice)? Show your working.

(3)

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9 Uma's fruit squash is made with juice and water in the ratio 4 : 3. Isla's squash is made with juice and water in the ratio 4 : 2. Whose squash is stronger (has the greater fraction of juice)? Show your working.

(3)

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10 In a school, the ratio of boys to girls is 2 : 3. What percentage of the pupils are boys?

(3)

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11 Write the ratio 2 : 7 in the form 1 : n.

(2)

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12 Uma's fruit squash is made with juice and water in the ratio 2 : 2. Victor's squash is made with juice and water in the ratio 2 : 3. Whose squash is stronger (has the greater fraction of juice)? Show your working.

(3)

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13 Find the missing number to make equivalent ratios.

(a) 3:4 = 9:? **(2)**

.....

(b) 5:7 = ?:28 **(2)**

.....

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

(3)

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15 A recipe uses oats and sugar in the ratio 3:2. If you use 18 g of oats, how much sugar should you use to keep the same ratio?

(2)

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16 Uma's fruit squash is made with juice and water in the ratio 2 : 3. Ben's squash is made with juice and water in the ratio 3 : 7. Whose squash is stronger (has the greater fraction of juice)? Show your working.

(3)

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17 Grace's fruit squash is made with juice and water in the ratio 6 : 3. Noah's squash is made with juice and water in the ratio 4 : 5. Whose squash is stronger (has the greater fraction of juice)? Show your working.

(3)

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18 Which is the larger ratio: 3:7 or 2:5? Explain briefly.

(2)

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Mark scheme · 3.2 Writing and Simplifying Ratios: Test Pack

Question 1

(a) 2:3 cao	B1
(a) Answer: **2:3**	
(b) 2:5 cao	B1
(b) Answer: **2:5**	
(c) 5:2 cao	B1
(c) Answer: **5:2**	
(d) 3:2 cao	B1
(d) Answer: **3:2**	

Question 2

A (5:8)	B1
Answer: **A (5:8)**	

Question 3

D (12:20)	B1
Answer: **D (12:20)**	

Question 4

(a) 2:3:5 cao	B1
(a) Answer: **2:3:5**	
(b) 3:5:2 cao	B1
(b) Answer: **3:5:2**	

Question 5

(a) 2:3 cao	B1
(a) Answer: **2:3**	
(b) 4:1 cao	B1
(b) Answer: **4:1**	

Question 6

multiplies 3 : 5 by 2 to get 6 : 10, or simplifies 6 : 8 to 3 : 4, or compares 3 / 5 = 0.6 with 6 / 8 = 0.75, oe	M1
no (Aisha is not correct) with a correct supporting statement, e.g. 6 : 10 is equivalent to 3 : 5 but 6 : 8 is not, oe	A1
Answer: **No. Doubling 3 : 5 gives 6 : 10, not 6 : 8 (6 : 8 simplifies to 3 : 4).**	

Question 7

3/11 or a decimal for one squash	M1
3/8 for the other, compared	M1
Ben's squash is stronger	A1
Answer: **Ben's squash is stronger**	

Question 8

4/8 or a decimal for one squash	M1
1/7 for the other, compared	M1
Isla's squash is stronger	A1
Answer: **Isla's squash is stronger**	

Question 9

4/7 or a decimal for one squash	M1
4/6 for the other, compared	M1
Isla's squash is stronger	A1
Answer: **Isla's squash is stronger**	

Question 10

2/5	M1
x 100	M1
40% cao	A1
Answer: **40%**	

Question 11

divides both parts by 2	M1
1 : 3.5 cao	A1
Answer: **1 : 3.5**	

Question 12

2/4 or a decimal for one squash	M1
2/5 for the other, compared	M1
Uma's squash is stronger	A1
Answer: **Uma's squash is stronger**	

Question 13

(a) scale factor 3 -> 9 is x3, so 4 x 3 = 12	M1
(a) 12 cao	A1
(a) Answer: **12**	
(b) scale factor 7 -> 28 is x4, so 5 x 4 = 20	M1
(b) 20 cao	A1
(b) Answer: **20**	

Question 14

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

Question 15

method: 3 parts -> 18 so 1 part = 6, sugar 2 parts = 12	M1
12 g cao	A1
Answer: **12 g**	

Question 16

2/5 or a decimal for one squash	M1
3/10 for the other, compared	M1
Uma's squash is stronger	A1
Answer: **Uma's squash is stronger**	

Question 17

6/9 or a decimal for one squash	M1
4/9 for the other, compared	M1
Grace's squash is stronger	A1
Answer: **Grace's squash is stronger**	

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Question 18

method: convert to fractions 3/7 and 2/5 or compare by cross-multiplication **M1**

conclusion: 3:7 is larger with a brief justification cao **A1**

Answer: **3:7 is larger; 3/7 is approximately 0.4286 and 2/5 = 0.4**

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