1.9 Fractions: Adding and Subtracting: Test Pack

Calculators not allowed · about 55 minutes

Name: _____ Date: ____ / ____ / _____

Answer ALL questions. Show all your working.

1 Write each fraction as a fraction with denominator 12.

(a) Write 1/3 with denominator 12. **(1)**

(b) Write 5/6 with denominator 12. **(1)**

(c) Write 1/4 with denominator 12. **(1)**

(d) Write 7/12 with denominator 12. **(1)**

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2 Calculate and simplify: 7/9 + 2/3 + 1/6.

(4)

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3 Three friends share a 5 1/3 litre juice box. Sarah drinks 1 1/4 litres and Amir drinks 1 2/5 litres. How much is left? Give your answer in simplest form.

(4)

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4 Stretch: A mural is 7 1/2 metres long. Three painters paint sections measuring 1 7/10 m, 2 3/5 m and 1 4/15 m. Will the whole mural be painted? If not, how much remains unpainted? Give your answer in simplest form.

(5)

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5 Work out 3/5 - 1/2.
Give your answer in its simplest form.

(2)

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6 Write 6 3/4 as an improper fraction.

(1)

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7 Work out 1/4 + 3/7.
Give your answer in its simplest form.

(2)

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8 Work out 2 1/3 + 2 1/2.
Give your answer as a mixed number in its simplest form.

(3)

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9 Simplify fully and show working: 3/5 + 7/15 - 1/3.

(3)

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10 Subtract and simplify: 9/10 - 2/5.

(2)

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11 Simplify fully, showing your working: 2/3 + 1/6 - 1/2.

(2)

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12 A tin holds 4 1/5 litres of paint. A decorator uses 1 3/10 litres on one wall and 3/4 litre on another. How much paint is left in the tin? Give your answer in simplest form.

(3)

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13 A ribbon is 6 3/4 m long. Three pieces are cut from it: 1 1/2 m, 2 1/5 m and 7/10 m. How much ribbon remains? Give your answer in simplest form, and state whether more than 2 m of ribbon is left.

(3)

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14 Write 5/7 with denominator 21.

(1)

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15 Calculate and simplify where possible: 1/3 + 1/9.

(1)

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16 Work out 5/6 - 1/4. Give your answer in simplest form.

(2)

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17 Add these mixed numbers: 1 1/2 + 2 3/4. Give your answer as a mixed number in simplest form.

(2)

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Mark scheme · 1.9 Fractions: Adding and Subtracting: Test Pack

Question 1

(a) 4/12 cao	B1
(a) Answer: **4/12**	
(b) 10/12 cao	B1
(b) Answer: **10/12**	
(c) 3/12 cao	B1
(c) Answer: **3/12**	
(d) 7/12 cao	B1
(d) Answer: **7/12**	

Question 2

choose common denominator 18 or equivalent	M1
convert each: 14/18 + 12/18 + 3/18	M1
sum to 29/18	M1
1 11/18 or 29/18 cao	A1
Answer: **1 11/18**	

Question 3

convert to improper fractions: 5 1/3 = 16/3, 1 1/4 = 5/4, 1 2/5 = 7/5	M1
use common denominator 60 and find total consumed: 5/4 = 75/60, 7/5 = 84/60 so sum = 159/60	M1
convert 16/3 to 320/60 and subtract: 320/60 - 159/60 = 161/60	M1
2 41/60 litres cao	A1
Answer: **2 41/60 litres**	

Question 4

convert all to improper fractions or common denominator; 7 1/2 = 15/2, 1 7/10 = 17/10, 2 3/5 = 13/5, 1 4/15 = 19/15	M1
choose common denominator 30 and convert: 15/2 = 225/30, 17/10 = 51/30, 13/5 = 78/30, 19/15 = 38/30	M1
sum painted sections: 51/30 + 78/30 + 38/30 = 167/30	M1
compare to total: 225/30 - 167/30 = 58/30	M1
29/15 m or 1 14/15 m unpainted cao	A1
Answer: **1 14/15 m**	

Question 5

common denominator 10 used: 6/10 and 5/10	M1
1/10 cao	A1
Answer: **1/10**	

Question 6

27/4 cao	B1
Answer: **27/4**	

Question 7

common denominator 28 used: 7/28 and 12/28	M1
19/28 cao	A1
Answer: **19/28**	

Question 8

converts to improper fractions or deals with the whole numbers and fractions separately	M1
common denominator used and the operation carried out correctly	M1
4 5/6 cao	A1
Answer: **4 5/6**	

Question 9

use common denominator 15 or equivalent method	M1
correct addition/subtraction: 9/15 + 7/15 - 5/15 = 11/15	M1
11/15 cao	A1
Answer: **11/15**	

Question 10

correctly converts to tenths, 9/10 and 4/10	M1
1/2 cao	A1
Answer: **1/2**	

Question 11

correctly converts all three fractions to sixths, 4/6, 1/6 and 3/6	M1
1/3 cao	A1
Answer: **1/3**	

Question 12

correctly finds the total paint used, converting to twentieths, 26/20 + 15/20 = 41/20	M1
correctly converts 4 1/5 to twentieths, 84/20, and subtracts	M1
2 3/20 litres cao	A1
Answer: **2 3/20 litres**	

Question 13

correctly finds the total length cut, converting to tenths, 15/10 + 22/10 + 7/10 = 44/10 = 4 2/5	M1
correctly converts 6 3/4 and 4 2/5 to twentieths and subtracts, 135/20 - 88/20	M1
2 7/20 m cao, and correctly states this is more than 2 m	A1
Answer: **2 7/20 m, which is more than 2 m**	

Question 14

15/21 cao	B1
Answer: **15/21**	

Question 15

4/9 cao	B1
Answer: **4/9**	

Question 16

correctly converts both fractions to twelfths, 10/12 and 3/12	M1
7/12 cao	A1
Answer: **7/12**	

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Question 17

correctly converts to improper fractions or a common denominator, 6/4 and 11/4	**M1**
4 1/4 cao	**A1**

Answer: **4 1/4**

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