



EP.M96 Adding and Subtracting Fractions with Unlike Denominators

GL ASSESSMENT GL-11PLUS-MATHS · Calculators not allowed · about 55 minutes

Total Marks

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Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

1 What is $\frac{1}{2} + \frac{1}{3}$?

- ☐ A) $\frac{1}{5}$
- ☐ B) $\frac{2}{5}$
- ☐ C) $\frac{5}{6}$
- ☐ D) 1
- ☐ E) $\frac{5}{9}$

(Total for Question 1 is 1 mark)

2 Calculate $\frac{2}{3} - \frac{1}{4}$.

- ☐ A) $\frac{1}{12}$
- ☐ B) $\frac{5}{12}$
- ☐ C) $\frac{1}{3}$
- ☐ D) $\frac{5}{7}$
- ☐ E) $\frac{11}{12}$

(Total for Question 2 is 1 mark)

3 Find the value of $\frac{3}{5} + \frac{2}{7}$.

- ☐ A) $\frac{31}{35}$
- ☐ B) $\frac{5}{12}$
- ☐ C) $\frac{13}{35}$
- ☐ D) $\frac{6}{7}$
- ☐ E) $1\frac{3}{35}$

(Total for Question 3 is 1 mark)

4 Calculate $\frac{7}{8} - \frac{1}{3}$.

- ☐ A) $\frac{13}{24}$
- ☐ B) $\frac{6}{11}$
- ☐ C) $\frac{4}{24}$
- ☐ D) $\frac{7}{11}$
- ☐ E) $\frac{5}{24}$

(Total for Question 4 is 1 mark)

5 What is $\frac{5}{6} + \frac{1}{2}$? Give your answer as a mixed number if needed.

- ☐ A) $\frac{4}{3}$
- ☐ B) $1 \frac{1}{3}$
- ☐ C) $\frac{7}{6}$
- ☐ D) $\frac{6}{6}$
- ☐ E) $\frac{5}{12}$

(Total for Question 5 is 1 mark)

6 Calculate $2 \frac{1}{4} - \frac{3}{8}$. Give your answer as a mixed number.

- ☐ A) $1 \frac{1}{4}$
- ☐ B) $1 \frac{3}{8}$
- ☐ C) $1 \frac{7}{8}$
- ☐ D) $2 \frac{1}{8}$
- ☐ E) $2 \frac{5}{8}$

(Total for Question 6 is 1 mark)

7 Find $\frac{4}{9} + \frac{5}{6}$. Give your answer as a mixed number if needed.

- ☐ A) $\frac{23}{18}$
- ☐ B) $1 \frac{5}{18}$
- ☐ C) $1 \frac{7}{18}$
- ☐ D) $2 \frac{5}{18}$
- ☐ E) $\frac{23}{36}$

(Total for Question 7 is 1 mark)

8 Calculate $9/10 - 2/3$ and give the answer in simplest form.

- ☐ A) $7/30$
- ☐ B) $1/30$
- ☐ C) $1/15$
- ☐ D) $5/30$
- ☐ E) $7/10$

(Total for Question 8 is 1 mark)

9 Work out $1/3 + 3/4$. Give the answer as a mixed number.

- ☐ A) $13/12$
- ☐ B) $1 \frac{1}{12}$
- ☐ C) $1 \frac{3}{12}$
- ☐ D) $7/12$
- ☐ E) $4/3$

(Total for Question 9 is 1 mark)

10 Find $5/12 + 1/18$ and give your answer in simplest form.

- ☐ A) $17/36$
- ☐ B) $1/3$
- ☐ C) $7/36$
- ☐ D) $11/36$
- ☐ E) $17/18$

(Total for Question 10 is 1 mark)

11 Calculate $7/15 - 1/6$ and give the answer in simplest form.

- ☐ A) $3/10$
- ☐ B) $9/30$
- ☐ C) $11/30$
- ☐ D) $1/5$
- ☐ E) $4/15$

(Total for Question 11 is 1 mark)

12 Add $3\frac{2}{5}$ and $1\frac{3}{10}$. Give your answer as a mixed number.

- ☐ A) $4\frac{7}{10}$
- ☐ B) $5\frac{1}{2}$
- ☐ C) $4\frac{1}{2}$
- ☐ D) $4\frac{13}{10}$
- ☐ E) $3\frac{11}{10}$

(Total for Question 12 is 1 mark)

13 Work out $\frac{3}{4} + \frac{5}{12}$. Give your answer in simplest form.

(Total for Question 13 is 2 marks)

14 A recipe needs $\frac{2}{3}$ litre of milk and you then add a further $\frac{1}{4}$ litre. How much milk is used in total? Give your answer in simplest form.

(Total for Question 14 is 2 marks)

15 Sofia ate $\frac{3}{5}$ of a tart and Amir ate $\frac{1}{3}$ of the same tart. What fraction of the tart remains?

(Total for Question 15 is 2 marks)

16 A ribbon is $1\frac{1}{2}$ m long. A piece of $\frac{2}{3}$ m is cut from it. How much ribbon is left? Give your answer in simplest form.

(Total for Question 16 is 2 marks)

17 Calculate $\frac{5}{8} + \frac{1}{3} + \frac{1}{24}$. Write your answer as a whole number or fraction in simplest form.

(Total for Question 17 is 2 marks)

18 A jug contains $2\frac{1}{3}$ litres of juice. Eva pours out $\frac{7}{12}$ litre. How much juice remains? Give your answer as a mixed number in simplest form.

(Total for Question 18 is 2 marks)

19 Three friends share a pizza. Naomi ate $\frac{3}{8}$ and Leo ate $\frac{1}{6}$. What fraction of the pizza did Priya eat? Give your answer in simplest form.

(Total for Question 19 is 3 marks)

20 A water tank was $4\frac{2}{5}$ full. After some water was used it was $2\frac{7}{10}$ full. How much water was used? Give your answer as a mixed number in simplest form.

(Total for Question 20 is 3 marks)

Mark scheme · EP.M96 Adding and Subtracting Fractions with Unlike Denominators

Question 1

- **B1** correct option C ($5/6$) cao
- **Answer: C) $5/6$** (since $1/2 = 3/6$ and $1/3 = 2/6$, $3/6 + 2/6 = 5/6$).

Question 2

- **B1** correct option B ($5/12$) cao
- **Answer: B) $5/12$** ($2/3 = 8/12$; $8/12 - 3/12 = 5/12$).

Question 3

- **B1** correct option A ($31/35$) cao
- **Answer: A) $31/35$** ($3/5 = 21/35$; $2/7 = 10/35$; $21/35 + 10/35 = 31/35$).

Question 4

- **B1** correct option A ($13/24$) cao
- **Answer: A) $13/24$** ($7/8 = 21/24$; $1/3 = 8/24$; $21/24 - 8/24 = 13/24$).

Question 5

- **B1** correct option B ($1 \frac{1}{3}$) cao
- **Answer: B) $1 \frac{1}{3}$** ($5/6 + 1/2 = 5/6 + 3/6 = 8/6 = 1 \frac{2}{6} = 1 \frac{1}{3}$).

Question 6

- **B1** correct option C ($1 \frac{7}{8}$) cao
- **Answer: C) $1 \frac{7}{8}$** ($2 \frac{1}{4} = 2 \frac{2}{8}$; $2 \frac{2}{8} - 3/8 = 2 - 1/8 = 1 \frac{7}{8}$).

Question 7

- **B1** correct option B ($1 \frac{5}{18}$) cao
- **Answer: B) $1 \frac{5}{18}$** ($4/9 = 8/18$; $5/6 = 15/18$; $8/18 + 15/18 = 23/18 = 1 \frac{5}{18}$).

Question 8

- **B1** correct option A ($7/30$) cao
- **Answer: A) $7/30$** ($9/10 = 27/30$; $2/3 = 20/30$; $27/30 - 20/30 = 7/30$).

Question 9

- **B1** correct option B ($1 \frac{1}{12}$) cao
- **Answer: B) $1 \frac{1}{12}$** ($1/3 = 4/12$; $3/4 = 9/12$; $4/12 + 9/12 = 13/12 = 1 \frac{1}{12}$).

Question 10

- **B1** correct option A ($17/36$) cao
- **Answer: A) $17/36$** ($5/12 = 15/36$; $1/18 = 2/36$; $15/36 + 2/36 = 17/36$).

Question 11

- **B1** correct option A ($3/10$) cao
- **Answer: A) $3/10$** ($7/15 = 14/30$; $1/6 = 5/30$; $14/30 - 5/30 = 9/30 = 3/10$).

Question 12

- **B1** correct option A ($4 \frac{7}{10}$) cao
- **Answer: A) $4 \frac{7}{10}$** ($3 \frac{2}{5} = 3 \frac{4}{10}$; $3/10$ added gives $4 \frac{7}{10}$).

Question 13

- **M1** common denominator method seen ($3/4 = 9/12$) or equivalent
- **A1** $1\frac{1}{6}$ or $7/6$ cao
- **Answer: $1\frac{1}{6}$ ($14/12 = 7/6$).**

Question 14

- **M1** Attempt to use common denominator ($2/3 = 8/12$, $1/4 = 3/12$) or equivalent
- **A1** $11/12$ litre cao
- **Answer: $11/12$ litre.**

Question 15

- **M1** Common denominator used to add fractions eaten ($3/5 = 9/15$, $1/3 = 5/15$) or equivalent
- **A1** $1/15$ remains cao
- **Answer: $1/15$ of the tart remains.**

Question 16

- **M1** Convert to improper or common denominator ($1\frac{1}{2} = 3/2$; $3/2 - 2/3$ with common denom 6 shown) or equivalent
- **A1** $5/6$ m cao
- **Answer: $5/6$ m.**

Question 17

- **M1** Use of common denominator or equivalent method ($5/8 = 15/24$, $1/3 = 8/24$) seen
- **A1** 1 cao
- **Answer: 1 (since $15/24 + 8/24 + 1/24 = 24/24 = 1$).**

Question 18

- **M1** Convert $2\frac{1}{3}$ to improper fraction and subtract using common denominator ($7/3 - 7/12$ or equivalent) seen
- **A1** $1\frac{3}{4}$ litres cao
- **Answer: $1\frac{3}{4}$ litres.**

Question 19

- **M1** Common denominator used to add Naomi and Leo's fractions ($3/8 = 9/24$, $1/6 = 4/24$) or equivalent
- **M1** Subtracting their total from 1 to find Priya's share ($1 - 13/24$) seen
- **A1** $11/24$ cao
- **Answer: $11/24$ of the pizza.**

Question 20

- **M1** Convert mixed numbers or use common denominator ($4\frac{2}{5} = 4\frac{4}{10}$, $2\frac{7}{10}$) or equivalent shown
- **M1** Subtraction carried out correctly ($4\frac{4}{10} - 2\frac{7}{10}$ or improper fraction method) seen
- **A1** $1\frac{7}{10}$ cao
- **Answer: $1\frac{7}{10}$ (since $4\frac{2}{5} - 2\frac{7}{10} = 4\frac{4}{10} - 2\frac{7}{10} = 1\frac{7}{10}$).**