



KS3.M-N10 Fractions: Multiplying and Dividing

AQA KS3.M-N10 · Calculators not allowed · about 60 minutes

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

1 Calculate $\frac{1}{2} \times \frac{1}{4}$.

(1)

2 Calculate $\frac{3}{5} \times 10$.

(1)

3 Calculate $\frac{2}{3} \times \frac{3}{4}$ and give your answer in simplest form.

(1)

4 Work out $1\frac{1}{3} \times \frac{3}{2}$. Show your method.

(2)

5 A box contains 60 sweets. Tom eats $\frac{2}{5}$ of the sweets. How many sweets does he eat?

(2)

6 Write down the reciprocal of $\frac{4}{7}$.

(1)

7 Calculate $\frac{3}{4} \div \frac{1}{2}$. Give your answer as a fraction and as a mixed number if appropriate.

(2)

8 Work out $5 \div \frac{2}{3}$. Give your answer in simplest form.

(2)

9 Calculate and simplify: $(\frac{3}{7}) \times (\frac{14}{9})$.

(2)

10 Find $\frac{3}{8}$ of 56. Show how you work this out.

(2)

11 Calculate $2 \frac{1}{2} \div \frac{1}{4}$. Show your method.

(2)

12 Sally has $\frac{3}{4}$ of a litre of juice. She pours away $\frac{2}{3}$ of it. How much juice does she pour away? Give your answer in litres.

(2)

13 Simplify $(\frac{2}{5}) \div (\frac{4}{15})$. Show your working and give your answer in simplest form.

(2)

14 A cake recipe needs $1\frac{2}{3}$ cups of flour. If a baker makes $\frac{1}{3}$ of the recipe, how many cups of flour are needed? Give your answer as a fraction in simplest form.

(2)

15 Solve for x : $x \times \frac{3}{4} = \frac{9}{8}$. Show your method and give x in simplest form.

(3)

16 A length of ribbon is $2\frac{1}{2}$ metres long. It is cut into pieces each $\frac{3}{5}$ metre long. How many full pieces can be cut from the ribbon and how much ribbon is left over? Give the leftover length as a fraction in simplest form.

(3)

Mark scheme • KS3.M-N10 Fractions: Multiplying and Dividing

Question 1

- **B1** $\frac{1}{8}$ cao
- Answer: **$\frac{1}{8}$**

Question 2

- **B1** 6 cao
- Answer: **6**

Question 3

- **B1** $\frac{1}{2}$ cao
- Answer: **$\frac{1}{2}$**

Question 4

- **M1** convert mixed number to improper fraction and multiply: $\frac{4}{3} \times \frac{3}{2}$ or equivalent method
- **A1** 2 cao
- Answer: **2**

Question 5

- **M1** method to find $\frac{2}{5}$ of 60, e.g. $60 \times \frac{2}{5}$ or $60 \div 5 \times 2$
- **A1** 24 cao
- Answer: **24**

Question 6

- **B1** $\frac{7}{4}$ cao
- Answer: **$\frac{7}{4}$**

Question 7

- **M1** use reciprocal: $\frac{3}{4} \times \frac{2}{1}$ or equivalent
- **A1** $\frac{3}{2}$ or $1 \frac{1}{2}$ cao
- Answer: **$\frac{3}{2} = 1 \frac{1}{2}$**

Question 8

- **M1** rewrite as $5 \times \frac{3}{2}$ or equivalent method
- **A1** $\frac{15}{2}$ or $7 \frac{1}{2}$ cao
- Answer: **$\frac{15}{2} = 7 \frac{1}{2}$**

Question 9

- **M1** multiply numerators and denominators or cancel first: 3×14 and 7×9 or cancel 7 with 14 etc
- **A1** $\frac{2}{3}$ cao
- Answer: **$\frac{2}{3}$**

Question 10

- **M1** method to find fraction of amount, e.g. $56 \times \frac{3}{8}$ or $56 \div 8 \times 3$
- **A1** 21 cao
- Answer: **21**

Question 11

- **M1** convert $2 \frac{1}{2}$ to improper fraction $\frac{5}{2}$ and use reciprocal: $\frac{5}{2} \times \frac{4}{1}$
- **A1** 10 cao
- Answer: **10**

Question 12

- **M1** method: $\frac{3}{4} \times \frac{2}{3}$ or equivalent
- **A1** $\frac{1}{2}$ litre cao
- **Answer: $\frac{1}{2}$ litre**

Question 13

- **M1** use reciprocal: $\frac{2}{5} \times \frac{15}{4}$ or show equivalent method
- **A1** $\frac{3}{2}$ or $1 \frac{1}{2}$ cao
- **Answer: $\frac{3}{2} = 1 \frac{1}{2}$**

Question 14

- **M1** convert $1 \frac{2}{3}$ to improper fraction $\frac{5}{3}$ and multiply by $\frac{1}{3}$
- **A1** $\frac{5}{9}$ cao
- **Answer: $\frac{5}{9}$**

Question 15

- **M1** isolate x by dividing both sides by $\frac{3}{4}$ or multiply by reciprocal: $x = \frac{9}{8} \times \frac{4}{3}$
- **M1** attempt to multiply numerators and denominators to get $\frac{36}{24}$ or equivalent
- **A1** $\frac{3}{2}$ or $1 \frac{1}{2}$ cao
- **Answer: $\frac{3}{2} = 1 \frac{1}{2}$**

Question 16

- **M1** method to divide: convert to improper fractions and divide $\frac{5}{2} \div \frac{3}{5} = \frac{5}{2} \times \frac{5}{3}$
- **M1** calculate $\frac{25}{6}$ and identify 4 full pieces with remainder $\frac{1}{6}$ of a piece (since $\frac{25}{6} = 4 \frac{1}{6}$)
- **A1** convert remainder to a length: $\frac{1}{6} \times \frac{3}{5} = \frac{1}{10}$, so 4 full pieces and leftover $\frac{1}{10}$ metre cao
- **Answer: 4 full pieces, leftover $\frac{1}{10}$ m**