



3.2H Fractions: Higher Tier Practice

EDEXCEL Edexcel 1MA1 · Calculator allowed · about 60 minutes

Total Marks

Name: _____ Date: ____ / ____ / ____

Answer ALL questions. Show all your working.

- 1** Simplify the fraction $18/24$.

(Total for Question 1 is 1 mark)

- 2** Work out $5/6 + 1/3$. Give your answer as an improper fraction.

(Total for Question 2 is 2 marks)

- 3** Work out $5 \frac{1}{4} - 2 \frac{3}{8}$. Give your answer as an improper fraction.

(Total for Question 3 is 2 marks)

- 4** Work out $(3/5) \times (25/6)$. Simplify your answer.

(Total for Question 4 is 2 marks)

- 5** Work out $(7/8) \div (3/4)$. Simplify your answer.

(Total for Question 5 is 3 marks)

6 Simplify the algebraic expression $(\frac{2}{3})x - (\frac{1}{6})x$.

(Total for Question 6 is 2 marks)

- 7** a) Show that $\frac{1}{1+a} + \frac{1}{1-a} = \frac{2}{1-a^2}$.
b) Hence or otherwise, find the value of the expression when $a = \frac{1}{3}$.

(a) Show that $\frac{1}{1+a} + \frac{1}{1-a} = \frac{2}{1-a^2}$. (3)

(b) Find the value when $a = \frac{1}{3}$. (1)

(Total for Question 7 is 4 marks)

- 8** A recipe requires $\frac{2}{3}$ cup of sugar for one batch of cookies. Olivia has $5\frac{1}{2}$ cups of sugar.
What is the maximum number of full batches she can make?

(Total for Question 8 is 2 marks)

- 9** Solve the equation $\frac{(2x+1)}{3} - \frac{(x-2)}{4} = \frac{5}{6}$. Give your answer as a fraction or integer.

(Total for Question 9 is 3 marks)

Mark scheme · 3.2H Fractions: Higher Tier Practice

Question 1

- **B1** $\frac{3}{4}$ cao
- **Answer:** $\frac{3}{4}$

Question 2

- **M1** common denominator 6, $\frac{5}{6} + \frac{2}{6}$ or equivalent method
- **A1** $\frac{7}{6}$ cao
- **Answer:** $\frac{7}{6}$

Question 3

- **M1** convert to improper fractions or use common denominator: $\frac{21}{4} - \frac{19}{8}$ or equivalent
- **A1** $\frac{23}{8}$ cao
- **Answer:** $\frac{23}{8}$

Question 4

- **M1** multiply numerators and denominators or cancel then multiply, e.g. $\frac{3 \times 25}{5 \times 6}$ oe
- **A1** $\frac{5}{2}$ cao
- **Answer:** $\frac{5}{2}$

Question 5

- **M1** use reciprocal: $(\frac{7}{8}) \times (\frac{4}{3})$ or equivalent
- **M1** multiply to get $\frac{28}{24}$ or show cancellation $\frac{7 \times 4}{8 \times 3}$
- **A1** $\frac{7}{6}$ cao
- **Answer:** $\frac{7}{6}$

Question 6

- **M1** find common coefficients: $\frac{4}{6}x - \frac{1}{6}x$ or equivalent
- **A1** $\frac{1}{2}x$ cao
- **Answer:** $\frac{1}{2}x$

Question 7

- (a) **M1** write common denominator $(1+a)(1-a)$ and combine numerators, e.g. $\frac{(1-a + 1+a)}{(1-a^2)}$ or equivalent
- (a) **M1** simplify numerator to 2
- (a) **A1** $\frac{2}{(1-a^2)}$ cao (cso)
- **(a) Answer:** $\frac{2}{(1-a^2)}$
- (b) **B1** $\frac{9}{4}$ cao
- **(b) Answer:** $\frac{9}{4}$

Question 8

- **M1** divide 5.5 by $\frac{2}{3}$ or equivalent: $5 \frac{1}{2} \times \frac{3}{2}$
- **A1** 8 cao
- **Answer:** 8

Question 9

- **M1** clear denominators by multiplying by 12 to get $4(2x+1) - 3(x-2) = 10$ or equivalent
- **M1** collect terms: $8x+4 -3x+6 = 10 \Rightarrow 5x +10 =10$
- **A1** $x = 0$ cao
- **Answer:** 0