



# Addition/Subtraction/ Multiplication/Division of Fractions & Decimals

## Mark Scheme 1

Level	IGCSE
Subject	Maths (0580)
Exam Board	Cambridge International Examinations (CIE)
Paper Type	Extended
Topic	Number
Sub-Topic	Add/Sub/Multiplication/Division of Fractions & Deci
Booklet	Mark Scheme 1

**Time Allowed:** 60 minutes

**Score:** /50

**Percentage:** /100

### Grade Boundaries:

A*	A	B	C	D	E	U
>85%	75%	60%	45%	35%	25%	<25%

1	$\frac{6}{7} \times \frac{3}{5}$ or $\frac{18}{21} \div \frac{35}{21}$ oe  $\frac{18}{35}$ cao	<b>A1</b>	<b>B1</b> for $\frac{5}{3}$ oe <b>M2</b>  or <b>M1</b> for $\frac{6}{7} \times$ <i>their</i> $\frac{3}{5}$
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2	$\frac{21}{8} \times \frac{3}{7}$ oe  $1\frac{1}{8}$ cao final answer	<b>M1</b>  <b>A2</b>	Must be shown  <b>A1</b> for $\frac{9}{8}$ oe e.g. $\frac{63}{56}$
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3	$\frac{1}{12} \times \frac{6}{5}$ oe  $\frac{1}{10}$ final answer cao	<b>M1</b>  <b>A1</b>	Must be shown
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4	$\frac{35(\text{or } 95)}{60} + \frac{39}{60}$  $2\frac{7}{30}$	<b>M1</b>  <b>A2</b>	accept $\frac{35k(\text{or } 95k)}{60k} + \frac{39k}{60k}$  or <b>A1</b> for $\frac{67}{30}$ or $\frac{134k}{60k}$ or $1\frac{74k}{60k}$ or $2\frac{14k}{60k}$
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5	$\frac{9}{5}$  <i>their</i> $\frac{9}{5} \times \frac{7}{3}$ or $\frac{9 \times 7}{5 \times 3}$  $\frac{21}{5}$ or $4\frac{1}{5}$ cao	<b>B1</b>  <b>M1</b>  <b>A1</b>	or $\frac{63}{35}$  or <i>their</i> $\frac{63}{35} \div \frac{15}{35}$ or equivalent division with fractions with common denominators
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6	$\frac{8}{3}$	<b>B1</b>	or $\frac{40}{15}$ accept $\frac{3}{8}$ or $\frac{15}{40}$
	$\frac{4}{5} \times \text{their } \frac{3}{8}$ oe	<b>M1</b>	or $\frac{12}{15} \div \text{their } \frac{40}{15}$ or equivalent division with fractions with common denominators
	$\frac{3}{10}$ cao	<b>A1</b>	

7	$\frac{15}{8}$	<b>B1</b>	or $\frac{135}{72}$
	$\text{their } \frac{15}{8} \times \frac{9}{5}$ oe	<b>M1</b>	or $\frac{135}{72} \div \frac{40}{72}$ or equivalent division with fractions with common denominators
	$\frac{27}{8}$ or $3\frac{3}{8}$ cao	<b>A1</b>	

8	$2\frac{3}{12}$ or $1\frac{15}{12}$ or $\frac{27}{12}$ or $\frac{9 \times 3}{4 \times 3}$	<b>M1</b>	Accept any correct conversion with common denominator $12k$
	$\text{their } (\frac{27}{12} - \frac{11}{12} = \frac{16}{12})$ oe	<b>M1</b>	Correct resolving of <i>their</i> subtraction with denominator $12k$ showing full working
	$1\frac{1}{3}$ or $\frac{4}{3}$ cao	<b>A1</b>	Working and then simplified answer must both be seen

9	[0].101 or [0].1005 to [0].1006	1	
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10 (a)	$\frac{3x}{2}$ oe final answer	1	
(b)	$\frac{x^2 + 2}{x}$ oe final answer	1	

11	Any two of $\frac{8}{12}, \frac{2}{12}$ or $\frac{3}{12}$ oe	M1	M1 for any 2 correct over a common denominator e. $\frac{4}{6}$ and $\frac{1}{6}$
	$\frac{8}{12} + \frac{2}{12} - \frac{3}{12}$ oe	M1	or SC2 for final answer $\frac{13}{12}$ or $1\frac{1}{12}$ with full working
	$\frac{7}{12}$	A1	

12	$\frac{25}{9}$	B1	(Alt) $\frac{25}{9}$
	$\frac{a}{b} \times \frac{6}{5}$ where $a > b$	M1	$\frac{their 25 \times 2}{9 \times 2} \div \frac{5 \times 3}{6 \times 3}$ oe
	Their $\frac{150}{45}$ or their correct full cancelling	M1FT dep	$\frac{their 25 \times 2}{5 \times 3}$ oe or $\frac{50}{18} \div \frac{15}{18}$ oe with 18's cancelled
$\frac{10}{3}$ or $3\frac{1}{3}$ nfw	A1		

13	$\frac{3}{12}$ and $\frac{2}{12}$ $\frac{5}{12}$ cao	<b>M1</b>  <b>A1</b>	Equivalent denominators can be used, working <b>must</b> be shown.
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14	$\frac{7}{6}$ oe <i>their</i> $\frac{7}{6} \times \frac{8}{7}$ oe $\frac{4}{3}$ or $1\frac{1}{3}$ cao must see working	<b>B1</b>  <b>M1</b>  <b>A1</b>	Or <b>M1</b> for $\frac{56}{48} \div \frac{42}{48}$ or equivalent division with fractions with common denominator
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15	$[\frac{1}{2} \times 1\frac{1}{2}] \frac{3}{4}$ oe $\frac{5 \times 2}{6 \times 2}$ and $\frac{3 \times 3}{4 \times 3}$ oe or better $\frac{1}{12}$ oe <b>working must be shown</b>	<b>B1</b>  <b>M1FT</b>  <b>A1</b>	
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16	$\frac{5}{4}$ oe $\frac{5 \times 9}{4 \times 9}$ and $\frac{7 \times 4}{9 \times 4}$ oe or better $\frac{17}{36}$ oe <b>working must be shown</b>	<b>B1</b>  <b>M1</b>  <b>FT</b>  <b>A1</b>	Do not allow decimals for the <b>B1</b> , <b>M1</b> , or <b>A1</b> e. $\frac{45}{36}$ and $\frac{28}{36}$ Follow through <i>their</i> $\frac{5}{4}$ for the <b>M1</b> mark. Alt method 1: <b>B1</b> for $\frac{1}{4} + \frac{2}{9}$ <b>M1</b> for $\frac{1 \times 9}{4 \times 9}$ and $\frac{2 \times 4}{4 \times 9}$ oe e.g. $\frac{9}{36}$ and $\frac{8}{36}$ Alt method 2: <b>B1</b> for $\frac{1}{4} - \frac{7}{9} + 1$ <b>M1</b> for oe e.g. $\frac{9}{36}$ and $\frac{8}{36}$ ISW converting fraction answer to a decimal.
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17	<p>(a) <math>\frac{9}{12} - \frac{1}{12}</math> oe  <math>[=] \frac{8}{12}</math> oe <math>[=] \frac{2}{3}</math></p> <p>(b) <math>\frac{5}{2} \times \frac{4}{25}</math> oe          Cancelling shown or <math>\frac{20}{50}</math> oe <math>[=] \frac{2}{5}</math></p>	<p><b>M1</b> <b>M1</b> <b>M1</b> <b>M1</b></p>	<p>Must be shown          Both fractions must be shown          Must be shown  <b>Dependent</b> and cancelling shown or a fraction and then <math>\frac{2}{5}</math> must be shown</p>
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18	<p>correct working;          e. <math>\frac{3k}{2k} \times \frac{16n}{3n} = 8</math></p>	2	<p><b>M1</b> for <math>\frac{3k}{2k}</math>          and <b>A1</b> for <math>\frac{3k}{2k} \times \frac{16n}{3n} = 8</math></p>
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