How to Conquer Fractions, Decimals & Percentages Vol 2 *Method*

Intelligent Australia Productions

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Contents

Teachers Notes		3
- Fractions -	Example	
• Addition *Simple Fractions*	$^{2}/_{5} + {}^{3}/_{10}$	4
• Addition *Mixed Numerals*	$3^{2}/_{3} + 1^{1}/_{6}$	5
• Subtraction *Simple Fractions*	$^{3}/_{5} - {}^{3}/_{10}$	6
• Subtraction *Mixed Numerals*	$6^{7}/_{9} - 1^{2}/_{3}$	7
• Multiplication *Simple Fractions*	$^{1}/_{4} \times {}^{2}/_{3}$	8
• Multiplication *Mixed Numerals*	$1^{7}/_{8} \times 1^{2}/_{3}$	9
• Division *Simple Fractions*	$^{3}/_{4} \div {}^{5}/_{6}$	10
• Division *Mixed Numerals*	$2^{1}/_{4} \div 3^{3}/_{8}$	11
• Finding a fraction of whole numbers	Find $^{1}/_{5}$ of 75	12
• Finding a fraction of decimal quantities	What is $^{1}/_{4}$ of 42.8?	13
- Percentages -	Example	
• Finding a percentage of whole numbers	Find 60% of 90	14
• Finding a percentage of decimal quantities	Find 30% of 8.5	15
• Increasing a whole number by a given %	Increase 60 by 70%	16
• Increasing a mixed numeral by a given %	Increase $5^{1}/_{4}$ by 25%	17
• Decreasing a whole number by a given %	Decrease 90 by 40%	18
• Decreasing a mixed numeral by a given %	Decrease $1^{4}/_{5}$ by 25%	19
• Percentages greater than 100	Find 500% of 18	20
- Decimals -	Example	
• Addition	0.008 + 1 + 7.9	21
• Subtraction	7.1 – 0.034	22
• Multiplication	7.5 x 0.6	23
• Division	7.2 ÷ 0.6	24
• Finding a decimal of whole numbers	Find 0.75 of 40	25
• Finding a decimal of percentage quantities	How much is 0.7 of 70%?	26
Answers		27

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Teachers Notes

About the Series

The 'How to Conquer Fractions, Decimals & Percentages' series was written in response to a pressing need. Most teachers of upper primary school classes would agree that this area of the Maths syllabus, along with Problem Solving, presents the most difficulties for students.

The series consists of four books:

- How to Conquer Fractions, Decimals & Percentages **Vol 1 *Fundamentals***
- How to Conquer Fractions, Decimals & Percentages **Vol 2 *Method***
- How to Conquer Fractions, Decimals & Percentages **Vol 3 *Conversions***
- How to Conquer Fractions, Decimals & Percentages **Vol 4 *Problem Solving***

The books are sequential, beginning with the most basic concepts in Volume 1, progressing through the steps required to work with and manipulate fractions, decimals and percentages, and concluding with examples based on everyday life where students can apply the skills gained from the earlier volumes.

How to Conquer Fractions, Decimals & Percentages Vol 2 *Method*

This book introduces students to the fundamentals of computations involving Fractions, Decimals and Percentages.
Each concept has worked examples to which students can refer as they work through the sheet. The examples are explained in clear, easy-to-understand steps, as are the rules for each operation (+, -, x and ÷).

Worksheets are student and teacher friendly with plenty of room to write answers, lots of working-out space and room for teacher's corrections/comments.

The pages in this book are ideal for testing students' competence in all four arithmetic operations involving Fractions, Decimals and Percentages and provide excellent preparation for entrance into secondary school

Some of what your students will learn:

- *How to cancel fractions (up and down/diagonally)*
- *When a Lowest Common Denominator needs to be found*
- *Converting fractions from mixed numerals to improper fractions*
- *Converting fractions from improper fractions to mixed numerals*
- *How to know where the decimal point goes in the answer*
- *In percentage increases and decreases the original amount is always 100%*
- *Always simplify your answer*

About the Author

Ron Shaw is a highly experienced classroom teacher.
He is the author of some 30+ educational books, many of which are used in schools in several English-speaking nations.
Ron has teaching qualifications from Edith Cowan University (Perth) and is a graduate of the Australian National University (Canberra).
He is a member of the Australian College of Education, the Australian Teaching Council, the Australian Association of Mathematics Teachers and the Mathematical Association of Western Australia.

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Working out space
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Fractions

Addition Simple Fractions

<u>Method</u> (where lowest common denominator requires changing <u>just one</u> of the addends)

1. Find lowest common denominator (LCD)
2. Adjust numerator and denominator of the fraction that needs to be changed
3. Add numerators but not denominators *4. Simplify if possible*

$\frac{1}{2} + \frac{3}{4} \rightarrow \frac{2\times1}{2\times2} + \frac{3}{4} \rightarrow \frac{2}{4} + \frac{3}{4} \rightarrow \frac{5}{4} = 1\frac{1}{4}$

<u>Method</u> (where lowest common denominator requires changing <u>both</u> of the addends)

1. Find lowest common denominator (LCD)
2. Adjust numerator and denominator of both fractions
3. Add numerators but not denominators *4. Simplify if possible*

$\frac{2}{3} + \frac{3}{5} \rightarrow \frac{5\times2}{5\times3} + \frac{3\times3}{3\times5} \rightarrow \frac{10}{15} + \frac{9}{15} \rightarrow \frac{19}{15} = 1\frac{4}{15}$

1 $\frac{2}{5} + \frac{3}{10} =$

2 $\frac{1}{6} + \frac{1}{3} =$

3 $\frac{3}{14} + \frac{5}{7} =$

4 $\frac{3}{5} + \frac{7}{20} =$

5 $\frac{2}{9} + \frac{2}{3} =$

6 $\frac{3}{4} + \frac{1}{12} =$

7 $\frac{8}{15} + \frac{2}{5} =$

8 $\frac{7}{12} + \frac{1}{3} =$

9 $\frac{3}{7} + \frac{3}{14} =$

10 $\frac{5}{6} + \frac{13}{18} =$

11 $\frac{7}{8} + \frac{3}{4} =$

12 $\frac{2}{3} + \frac{7}{9} =$

13 $\frac{1}{2} + \frac{1}{3} =$

14 $\frac{2}{5} + \frac{1}{4} =$

15 $\frac{1}{3} + \frac{3}{5} =$

16 $\frac{3}{4} + \frac{1}{5} =$

17 $\frac{2}{3} + \frac{1}{4} =$

18 $\frac{3}{7} + \frac{1}{2} =$

19 $\frac{2}{5} + \frac{1}{3} =$

20 $\frac{5}{6} + \frac{2}{5} =$

21 $\frac{3}{4} + \frac{2}{3} =$

22 $\frac{11}{12} + \frac{4}{5} =$

23 $\frac{7}{9} + \frac{1}{2} =$

24 $\frac{8}{11} + \frac{1}{3} =$

25 $\frac{9}{10} + \frac{2}{3} =$

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Fractions

Addition Mixed Numerals

Method (where lowest common denominator requires changing just one of the addends)

1. Convert mixed numerals to improper fractions 2. Find lowest common denominator (LCD)
3. Adjust numerator and denominator of the fraction that needs to be changed
4. Add numerators but not denominators 5. Simplify if possible

$2\frac{3}{4} + 3\frac{1}{2} \rightarrow \frac{11}{4} + \frac{7}{2} \rightarrow \frac{11}{4} + \frac{2\text{x}7}{2\text{x}2} \rightarrow \frac{11}{4} + \frac{14}{4} \rightarrow \frac{25}{4} = 6\frac{1}{4}$

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Method (where lowest common denominator requires changing both of the addends)

1. Convert mixed numerals to improper fractions. 2. Find lowest common denominator (LCD)
3. Adjust numerator and denominator of both fractions
4. Add numerators but not denominators 5. Simplify if possible

$4\frac{2}{3} + 3\frac{3}{5} \rightarrow \frac{14}{3} + \frac{18}{5} \rightarrow \frac{5\text{x}14}{5\text{x}3} + \frac{3\text{x}18}{3\text{x}5} \rightarrow \frac{70}{15} + \frac{54}{15} \rightarrow \frac{124}{15} = 8\frac{4}{15}$

1 $3\frac{2}{3} + 1\frac{1}{6}$ =

2 $2\frac{1}{2} + 5\frac{3}{4}$ =

3 $4\frac{2}{20} + 1\frac{3}{5}$ =

4 $6\frac{3}{14} + 2\frac{2}{7}$ =

5 $2\frac{3}{11} + 7\frac{9}{22}$ =

6 $5\frac{3}{10} + 3\frac{7}{30}$ =

7 $3\frac{1}{6} + 3\frac{5}{12}$ =

8 $2\frac{2}{5} + 7\frac{11}{15}$ =

9 $5\frac{5}{9} + 3\frac{13}{18}$ =

10 $6\frac{3}{4} + 4\frac{5}{16}$ =

11 $8\frac{9}{14} + 4\frac{5}{7}$ =

12 $7\frac{11}{18} + 3\frac{5}{6}$ =

13 $4\frac{1}{5} + 2\frac{3}{4}$ =

14 $2\frac{2}{3} + 1\frac{1}{4}$ =

15 $7\frac{2}{5} + 9\frac{1}{2}$ =

16 $8\frac{3}{7} + 6\frac{2}{5}$ =

17 $4\frac{2}{9} + 4\frac{2}{7}$ =

18 $5\frac{6}{11} + 3\frac{2}{5}$ =

19 $7\frac{3}{4} + 5\frac{2}{3}$ =

20 $2\frac{9}{10} + 9\frac{2}{3}$ =

21 $6\frac{4}{5} + 2\frac{3}{7}$ =

22 $5\frac{7}{9} + 4\frac{1}{4}$ =

23 $5\frac{11}{12} + 2\frac{1}{5}$ =

24 $6\frac{7}{10} + 1\frac{2}{3}$ =

25 $4\frac{4}{5} + 3\frac{2}{3}$ =

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Fractions

Subtraction Simple Fractions

Method (where lowest common denominator requires changing just one of the fractions)

1. Find lowest common denominator (LCD)
2. Adjust numerator and denominator of the fraction that needs to be changed
3. Subtract numerators but not denominators *4. Simplify if possible*

$\frac{2}{3} - \frac{1}{6} \rightarrow \frac{2\text{x}2}{2\text{x}3} - \frac{1}{6} \rightarrow \frac{4}{6} - \frac{1}{6} \rightarrow \frac{3}{6} = \frac{1}{2}$

Method (where lowest common denominator requires changing both fractions)

1. Find lowest common denominator (LCD)
2. Adjust numerator and denominator of both fractions
3. Subtract numerators but not denominators *4. Simplify if possible*

$\frac{7}{8} - \frac{4}{6} \rightarrow \frac{3\text{x}7}{3\text{x}8} - \frac{4\text{x}4}{4\text{x}6} \rightarrow \frac{21}{24} - \frac{16}{24} = \frac{5}{24}$

1 $\frac{3}{5} - \frac{3}{10}$ =

2 $\frac{5}{6} - \frac{2}{3}$ =

3 $\frac{6}{7} - \frac{3}{14}$ =

4 $\frac{7}{8} - \frac{3}{4}$ =

5 $\frac{5}{6} - \frac{7}{12}$ =

6 $\frac{2}{3} - \frac{5}{9}$ =

7 $\frac{7}{10} - \frac{12}{40}$ =

8 $\frac{3}{5} - \frac{6}{15}$ =

9 $\frac{8}{9} - \frac{2}{3}$ =

10 $\frac{7}{11} - \frac{14}{22}$ =

11 $\frac{8}{10} - \frac{1}{2}$ =

12 $\frac{9}{14} - \frac{2}{7}$ =

13 $\frac{8}{12} - \frac{1}{4}$ =

14 $\frac{7}{8} - \frac{2}{5}$ =

15 $\frac{3}{4} - \frac{5}{9}$ =

16 $\frac{5}{8} - \frac{1}{3}$ =

17 $\frac{8}{9} - \frac{3}{4}$ =

18 $\frac{6}{7} - \frac{3}{5}$ =

19 $\frac{9}{10} - \frac{2}{3}$ =

20 $\frac{1}{6} - \frac{1}{7}$ =

21 $\frac{5}{9} - \frac{1}{4}$ =

22 $\frac{4}{5} - \frac{2}{3}$ =

23 $\frac{8}{10} - \frac{1}{4}$ =

24 $\frac{7}{9} - \frac{4}{10}$ =

25 $\frac{1}{6} - \frac{1}{9}$ =

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Fractions

Subtraction Mixed Numerals

Method (where lowest common denominator requires changing just one of the fractions)

1. Convert mixed numerals to improper fractions *2. Find lowest common denominator (LCD)*
3. Adjust numerator and denominator of the fraction that needs to be changed
4. Subtract numerators but not denominators *5. Simplify if possible*

$5\frac{1}{2} - 3\frac{3}{4} \rightarrow \frac{11}{2} - \frac{15}{4} \rightarrow \frac{2x\ 11}{2x\ 2} - \frac{15}{4} \rightarrow \frac{22}{4} - \frac{15}{4} \rightarrow \frac{7}{4} = 1\frac{3}{4}$

Method (where lowest common denominator requires changing both fractions)

1. Convert mixed numerals to improper fractions *2. Find lowest common denominator (LCD)*
3. Adjust numerator and denominator of both fractions
4. Subtract numerators but not denominators *5. Simplify if possible*

$6\frac{1}{2} - 2\frac{2}{5} \rightarrow \frac{13}{2} - \frac{12}{5} \rightarrow \frac{5x13}{5x2} - \frac{2x12}{2x5} \rightarrow \frac{65}{10} - \frac{24}{10} \rightarrow \frac{41}{10} = 4\frac{1}{10}$

1 $7\frac{2}{7} - 4\frac{3}{14}$ =

2 $6\frac{7}{9} - 1\frac{2}{3}$ =

3 $4\frac{4}{12} - 2\frac{1}{6}$ =

4 $5\frac{1}{2} - 3\frac{5}{14}$ =

5 $9\frac{4}{5} - 4\frac{9}{10}$ =

6 $3\frac{1}{4} - 2\frac{5}{8}$ =

7 $7\frac{3}{8} - 5\frac{7}{16}$ =

8 $5\frac{3}{5} - 1\frac{7}{10}$ =

9 $9\frac{11}{21} - 4\frac{2}{7}$ =

10 $8\frac{9}{14} - 5\frac{3}{7}$ =

11 $4\frac{1}{2} - 1\frac{11}{16}$ =

12 $5\frac{7}{8} - 2\frac{9}{24}$ =

13 $8\frac{7}{8} - 4\frac{4}{5}$ =

14 $7\frac{2}{3} - 3\frac{1}{2}$ =

15 $4\frac{1}{2} - 3\frac{9}{11}$ =

16 $6\frac{9}{10} - 6\frac{3}{7}$ =

17 $5\frac{1}{4} - 2\frac{1}{3}$ =

18 $7\frac{4}{7} - 2\frac{3}{5}$ =

19 $3\frac{5}{8} - 1\frac{2}{3}$ =

20 $8\frac{1}{4} - 8\frac{1}{5}$ =

21 $9\frac{3}{5} - 3\frac{3}{8}$ =

22 $7\frac{1}{3} - 1\frac{9}{10}$ =

23 $4\frac{2}{3} - 3\frac{9}{10}$ =

24 $2\frac{1}{2} - 1\frac{2}{3}$ =

25 $6\frac{1}{5} - 2\frac{3}{7}$ =

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Fractions

Multiplication Simple Fractions

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Method

1. Where possible cancel diagonally, or up and down, or both
2. Multiply numerators, multiply denominators (simplifying where possible)

$\frac{8}{9} \times \frac{3}{4} \rightarrow \frac{\cancel{8}^{2}}{\cancel{9}^{3}} \times \frac{\cancel{3}^{1}}{\cancel{4}^{1}} = \frac{2}{3}$

1 $\frac{1}{4} \times \frac{2}{3}$ =

2 $\frac{2}{3} \times \frac{3}{4}$ =

3 $\frac{2}{5} \times \frac{10}{12}$ =

4 $\frac{3}{5} \times \frac{5}{6}$ =

5 $\frac{2}{9} \times \frac{3}{5}$ =

6 $\frac{1}{3} \times \frac{6}{7}$ =

7 $\frac{4}{5} \times \frac{5}{6}$ =

8 $\frac{3}{7} \times \frac{14}{15}$ =

9 $\frac{4}{9} \times \frac{12}{16}$ =

10 $\frac{3}{8} \times \frac{4}{5}$ =

11 $\frac{3}{10} \times \frac{5}{8}$ =

12 $\frac{11}{12} \times \frac{3}{22}$ =

13 $\frac{4}{7} \times \frac{7}{8}$ =

14 $\frac{2}{9} \times \frac{3}{16}$ =

15 $\frac{5}{8} \times \frac{4}{15}$ =

16 $\frac{6}{15} \times \frac{2}{7}$ =

17 $\frac{2}{3} \times \frac{5}{12}$ =

18 $\frac{4}{9} \times \frac{6}{20}$ =

19 $\frac{9}{10} \times \frac{2}{3}$ =

20 $\frac{3}{4} \times \frac{8}{9}$ =

21 $\frac{3}{14} \times \frac{7}{9}$ =

22 $\frac{2}{9} \times \frac{6}{10}$ =

23 $\frac{5}{6} \times \frac{3}{5}$ =

24 $\frac{3}{5} \times \frac{10}{15}$ =

25 $\frac{3}{7} \times \frac{7}{9}$ =

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Fractions

Multiplication Mixed Numerals

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Method

1. Convert mixed numerals to improper fractions
2. Where possible cancel diagonally, or up and down, or both
3. Multiply numerators, multiply denominators *4. Simplify if possible*

$4\frac{2}{3} \times 1\frac{1}{4} \rightarrow \frac{\cancel{14}^{7}}{3} \times \frac{5}{\cancel{4}_{2}} \rightarrow \frac{35}{6} = 5\frac{5}{6}$

1 $1\frac{7}{8} \times 1\frac{2}{3}$ =

2 $2\frac{3}{4} \times 2\frac{2}{5}$ =

3 $3\frac{1}{3} \times 1\frac{1}{5}$ =

4 $2\frac{5}{8} \times 2\frac{1}{4}$ =

5 $5\frac{1}{3} \times 1\frac{1}{5}$ =

6 $4\frac{1}{4} \times 1\frac{3}{5}$ =

7 $5\frac{4}{5} \times 3\frac{1}{3}$ =

8 $3\frac{2}{3} \times 1\frac{1}{5}$ =

9 $6\frac{3}{4} \times 1\frac{1}{9}$ =

10 $1\frac{2}{9} \times 7\frac{1}{5}$ =

11 $9\frac{1}{6} \times 2\frac{4}{11}$ =

12 $1\frac{1}{6} \times 5\frac{1}{7}$ =

13 $2\frac{2}{3} \times 1\frac{2}{5}$ =

14 $9\frac{1}{3} \times 2\frac{1}{4}$ =

15 $4\frac{2}{3} \times 1\frac{1}{2}$ =

16 $3\frac{2}{5} \times 1\frac{7}{8}$ =

17 $1\frac{1}{3} \times 1\frac{1}{3}$ =

18 $6\frac{1}{2} \times 1\frac{1}{5}$ =

19 $4\frac{4}{9} \times 8\frac{4}{5}$ =

20 $8\frac{3}{4} \times 2\frac{2}{7}$ =

21 $4\frac{2}{5} \times 1\frac{1}{2}$ =

22 $6\frac{2}{5} \times 1\frac{2}{8}$ =

23 $5\frac{1}{4} \times 2\frac{2}{7}$ =

24 $9\frac{1}{2} \times 1\frac{1}{3}$ =

25 $4\frac{1}{2} \times 5\frac{2}{3}$ =

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Fractions

Division Simple Fractions

Working out space
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Method

1. Invert 2nd fraction and change sign from ÷ to x
2. Where possible cancel diagonally, or up and down, or both
3. Multiply numerators, multiply denominators *4. Simplify if possible*

$\frac{4}{5} \div \frac{3}{5} \rightarrow \frac{4}{5} \times \frac{5}{3} \rightarrow \frac{\cancel{4}^{1}}{\cancel{5}_{1}} \times \frac{\cancel{5}^{1}}{3} \rightarrow \frac{4}{3} = 1\frac{1}{3}$

1 $\frac{3}{4} \div \frac{5}{6}$ =

2 $\frac{4}{5} \div \frac{8}{9}$ =

3 $\frac{1}{7} \div \frac{5}{14}$ =

4 $\frac{7}{8} \div \frac{21}{24}$ =

5 $\frac{2}{11} \div \frac{16}{33}$ =

6 $\frac{9}{10} \div \frac{3}{5}$ =

7 $\frac{2}{9} \div \frac{5}{6}$ =

8 $\frac{5}{12} \div \frac{8}{15}$ =

9 $\frac{4}{11} \div \frac{16}{33}$ =

10 $\frac{6}{7} \div \frac{3}{7}$ =

11 $\frac{5}{8} \div \frac{3}{14}$ =

12 $\frac{7}{18} \div \frac{2}{9}$ =

13 $\frac{8}{11} \div \frac{7}{44}$ =

14 $\frac{3}{5} \div \frac{9}{20}$ =

15 $\frac{2}{7} \div \frac{14}{35}$ =

16 $\frac{3}{7} \div \frac{24}{35}$ =

17 $\frac{6}{11} \div \frac{5}{22}$ =

18 $\frac{8}{9} \div \frac{11}{18}$ =

19 $\frac{16}{21} \div \frac{4}{7}$ =

20 $\frac{16}{33} \div \frac{8}{11}$ =

21 $\frac{9}{10} \div \frac{3}{5}$ =

22 $\frac{2}{11} \div \frac{3}{55}$ =

23 $\frac{24}{35} \div \frac{6}{7}$ =

24 $\frac{27}{28} \div \frac{3}{7}$ =

25 $\frac{15}{16} \div \frac{3}{8}$ =

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Fractions

Division Mixed Numerals

Working out space
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Method

1. Convert mixed numerals to improper fractions 2. Invert 2nd fraction & change sign from ÷ to x
3. Where possible cancel diagonally, or up and down, or both
4. Multiply numerators, multiply denominators 5. Simplify if possible

$3\frac{1}{5} \div 2\frac{2}{3} \rightarrow \frac{16}{5} \div \frac{8}{3} \rightarrow \frac{\cancel{16}^{2}}{5} \times \frac{3}{\cancel{8}_{1}} \rightarrow \frac{6}{5} = 1\frac{1}{5}$

1 $2\frac{1}{4} \div 3\frac{3}{8}$ =

2 $4\frac{1}{6} \div 5\frac{5}{6}$ =

3 $1\frac{2}{9} \div 5\frac{1}{3}$ =

4 $7\frac{7}{8} \div 4\frac{1}{5}$ =

5 $8\frac{3}{4} \div 3\frac{2}{6}$ =

6 $2\frac{11}{12} \div 5\frac{5}{6}$ =

7 $4\frac{1}{2} \div 4\frac{1}{5}$ =

8 $3\frac{2}{6} \div 3\frac{1}{3}$ =

9 $1\frac{10}{12} \div 3\frac{2}{3}$ =

10 $8\frac{1}{4} \div 6\frac{3}{5}$ =

11 $9\frac{4}{5} \div 2\frac{4}{5}$ =

12 $9\frac{6}{10} \div 6\frac{6}{7}$ =

13 $2\frac{5}{8} \div 3\frac{3}{6}$ =

14 $1\frac{3}{4} \div 2\frac{2}{6}$ =

15 $1\frac{1}{11} \div 4\frac{4}{5}$ =

16 $3\frac{1}{2} \div 1\frac{3}{8}$ =

17 $4\frac{2}{3} \div 1\frac{5}{6}$ =

18 $2\frac{11}{12} \div 1\frac{1}{6}$ =

19 $7\frac{7}{8} \div 8\frac{2}{5}$ =

20 $6\frac{1}{4} \div 4\frac{1}{6}$ =

21 $7\frac{2}{10} \div 5\frac{1}{7}$ =

22 $5\frac{1}{3} \div 1\frac{2}{9}$ =

23 $8\frac{2}{5} \div 7\frac{7}{8}$ =

24 $5\frac{5}{11} \div 4\frac{2}{7}$ =

25 $4\frac{1}{6} \div 6\frac{1}{4}$ =

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Fractions

Finding a fraction of whole numbers

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Method

1. Change the integer to an improper fraction
2.Multiply this improper fraction by the other fraction, simplifying where possible

Example 1
Find 1/3 of 18:

$$\frac{1}{\cancel{3}} \times \frac{\cancel{18}^{6}}{1} = 6$$

Example 2
Find 3/4 of 80:

$$\frac{3}{\cancel{4}} \times \frac{\cancel{80}^{20}}{1} = 60$$

Calculate, then write answers underneath...

1 Find 1/5 of 75

2 Find 1/4 of 92

3 Find 1/3 of 57

4 Find 1/4 of 56

5 Find 1/6 of 84

6 Find 1/7 of 91

7 Find 2/5 of 85

8 Find 3/7 of 98

9 Find 3/4 of 92

10 Find 2/3 of 78

11 Find 3/5 of 70

12 Find 4/7 of 84

13 Find 7/8 of 168

14 Find 4/5 of 155

15 Find 7/9 of 189

16 Find 2/9 of 261

17 Find 3/7 of 217

18 Find 5/8 of 176

19 Find 2/5 of 300

20 Find 8/9 of 198

21 Find 5/6 of 312

22 Find 5/9 of 369

23 Find 2/7 of 497

24 Find 4/5 of 555

25 Find 5/7 of 504

No. Correct	% Score	*Signature or Comment*

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Fractions

Finding a fraction of decimal quantities

Working out space

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Method

1. Change the decimal quantity into fraction form, eg 4.2 → $^{4.2}/_{1}$

2. Multiply the two fractions together, simplifying where possible

Example

What is 1/3 of 9.03?

$$\frac{1}{\cancel{3}} \times \frac{\cancel{9.03}^{3.01}}{1} = 3.01$$

Try these:

1 What is 1/4 of 42.8? **2** What is 1/5 of 10.5? **3** What is 1/3 of 63.6?

4 What is 3/4 of 8.04? **5** What is 2/3 of 9.69? **6** What is 2/5 of 32.5?

7 What is 2/7 of 30.1? **8** What is 4/5 of 0.95? **9** What is 5/9 of 1.08?

10 Find 3/4 of 0.56 **11** Find 2/7 of 1.26 **12** Find 8/9 of 0.216

13 Find 5/6 of 5.16 **14** Find 3/5 of 0.015 **15** Find 7/8 of 0.016

16 Find 1/4 of 0.012 **17** Find 2/3 of 0.006 **18** Find 3/7 of 0.049

19 Find 5/6 of 0.006 **20** Find 3/4 of 0.016 **21** Find 5/8 of 0.024

22 Find 4/7 of 0.175 **23** Find 5/9 0f 0.036 **24** Find 4/5 of 0.905

25 Find 5/6 of 0.042

No. Correct	% Score	*Signature or Comment*

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Percentages

Finding a percentage of whole numbers

Method

1. Multiply the quantity by the percentage number divided by 100 (simplifying where possible)

Example 1
Find 70% of 80:

$$\frac{\cancel{70} \times \cancel{80}}{\cancel{100}} = 56$$

Example 2
Find 75% of 60:

$$\frac{\cancel{75}^{3} \times \cancel{60}^{15}}{\cancel{100}^{4}} = 45$$

Working out space
continue over page if you need more room

Calculate, then write answers underneath...

1 Find 60% of 90

2 Find 30% of 80

3 Find 70% of 70

4 Find 90% of 90

5 Find 20% of 60

6 Find 60% of 30

7 Find 40% of 20

8 Find 90% of 80

9 Find 20% of 20

10 Find 15% of 40

11 Find 25% of 70

12 Find 45% of 90

13 Find 95% of 80

14 Find 5% of 80

15 Find 65% of 50

16 Find 70% of 900

17 Find 60% of 600

18 Find 40% of 200

19 Find 90% of 10

20 Find 80% of 800

21 Find 10% of 10

22 Find 55% of 700

23 Find 15% of 600

24 Find 95% of 900

25 Find 5% of 60

No. Correct	% Score	*Signature or Comment*

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Percentages

Finding a percentage of decimal quantities

Working out space
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Method

1. Multiply the quantity by the percentage number divided by 100 (simplifying where possible)

Example 1
Find 40% of 60.5

$$\frac{40^{2} \times 60.5^{12.1}}{100^{5}} = 24.2$$

Example 2
Find 75% of 8.04

$$\frac{75^{3} \times 8.04^{2.01}}{100^{4}} = 6.03$$

Calculate, then write answers underneath…

1 Find 30% of 8.5

2 Find 60% of 6.5

3 Find 20% of 9.5

4 Find 80% of 12.5

5 Find 40% of 15.5

6 Find 70% of 42.4

7 Find 90% of 3.4

8 Find 10% of 562.5

9 Find 50% of 491.6

10 Find 60% of 30.4

11 Find 40% of 90.6

12 Find 75% of 80.8

13 Find 25% of 308.4

14 Find 90% of 49.6

15 Find 5% of 64.4

16 Find 90% of 9.08

17 Find 20% of 4.44

18 Find 30% of 8.56

19 Find 80% of 1.85

20 Find 40% of 4.65

21 Find 10% of 5.55

22 Find 30% of 0.68

23 Find 80% of 0.48

24 Find 10% of 2.04

25 Find 50% of 1.068

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Percentages

Increasing a whole number by a given %

Working out space

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** **Important Note:** The ***original*** quantity always equals 100%. **

Method

1. Add the percentage increase to 100

2. Multiply the quantity by this number and divide by 100 (simplifying where possible)

Example 1

Increase 20 by 30%.

30 + 100 = 130

$$\frac{\cancel{130} \times \cancel{20}}{\cancel{100}} \rightarrow \frac{26}{1} = 26$$

Example 2

Increase 84 by 25%.

25 + 100 = 125

$$\frac{^{5}\cancel{125} \times \cancel{84}^{21}}{\cancel{100}_{4}} \rightarrow \frac{105}{1} = 105$$

Example 3

Increase 320 by 40%.

40 + 100 = 140

$$\frac{\cancel{140} \times \cancel{320}}{\cancel{100}} \rightarrow \frac{448}{1} = 448$$

Example 4

Increase 560 by 75%.

75 + 100 = 175

$$\frac{^{5}\cancel{175} \times \cancel{560}^{140}}{\cancel{^{4}100}} \rightarrow \frac{700}{1} = 700$$

1 Increase 60 by 70%

2 Increase 50 by 80%

3 Increase 40 by 50%

4 Increase 10 by 10%

5 Increase 90 by 10%

6 Increase 70 by 20%

7 Increase 80 by 25%

8 Increase 40 by 35%

9 Increase 20 by 85%

10 Increase 60 by 15%

11 Increase 80 by 65%

12 Increase 20 by 95%

13 Increase 500 by 70%

14 Increase 460 by 20%

15 Increase 640 by 50%

16 Increase 280 by 70%

17 Increase 150 by 90%

18 Increase 880 by 10%

19 Increase 440 by 75%

20 Increase 200 by 65%

21 Increase 380 by 25%

22 Increase 720 by 5%

23 Increase 300 by 65%

24 Increase 60 by 5%

25 Increase 800 by 25%

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Percentages

Increasing a mixed numeral by a given %

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** **Important Note:** The ***original*** quantity always equals 100%. **

Method

1. Add the percentage increase to 100

2. Multiply the mixed numeral (converted to an improper fraction) by this number and divide by 100, simplifying where possible

.

Example

Increase 3½ by 60%.

60 + 100 = 160 $\qquad$ $3\frac{1}{2} = \frac{7}{2}$

$$\frac{\cancel{7}}{\cancel{2}} \times \frac{\cancel{160}^{8}}{\cancel{100}^{5}} \rightarrow \frac{28}{5} = 5\frac{3}{5}$$

1 Increase $5\frac{1}{4}$ by 25%

2 Increase $8\frac{3}{4}$ by 50%

3 Increase $2\frac{3}{5}$ by 50%

4 Increase $3\frac{7}{10}$ by 50%

5 Increase $1\frac{3}{5}$ by 10%

6 Increase $4\frac{1}{10}$ by 50%

7 Increase $7\frac{1}{2}$ by 40%

8 Increase $6\frac{1}{3}$ by 25%

9 Increase $4\frac{2}{5}$ by 10%

10 Increase $1\frac{4}{5}$ by 25%

11 Increase $7\frac{1}{7}$ by 50%

12 Increase $5\frac{5}{10}$ by 25%

13 Increase $9\frac{1}{2}$ by 50%

14 Increase $4\frac{2}{3}$ by 20%

15 Increase $2\frac{1}{7}$ by 50%

16 Increase $5\frac{3}{10}$ by 80%

17 Increase $3\frac{2}{5}$ by 20%

18 Increase $6\frac{1}{2}$ by 10%

19 Increase $3\frac{2}{6}$ by 60%

20 Increase $1\frac{1}{9}$ by 25%

21 Increase $2\frac{4}{5}$ by 80%

22 Increase $6\frac{2}{5}$ by 50%

23 Increase $8\frac{1}{2}$ by 25%

24 Increase $6\frac{1}{3}$ by 50%

25 Increase $4\frac{8}{10}$ by 25%

No. Correct	% Score	*Signature or Comment*

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Percentages

Decreasing a whole number by a given %

Working out space
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** **Remember:** The ***original*** quantity always equals 100%. **

Method
1. Subtract the percentage decrease from 100.
2. Multiply the quantity by this number and divide by 100.
3. Simplify if possible

Example 1
Decrease 70 by 20%.

100 - 20 = 80

$\frac{70 \times 80}{100} \rightarrow \frac{56}{1} = 56$

Example 2
Decrease 40 by 25%.

100 - 25 = 75

$\frac{40 \times 75}{100} \rightarrow \frac{30}{1} = 30$

Example 3
Decrease 500 by 30%.

100 - 30 = 70

$\frac{500 \times 70}{100} \rightarrow \frac{350}{1} = 350$

Example 4
Decrease 600 by 5%.

100 - 5 = 95

$\frac{600 \times 95}{100} \rightarrow \frac{570}{1} = 570$

1 Decrease 50 by 20%
2 Decrease 80 by 40%
3 Decrease 60 by 10%
4 Decrease 70 by 70%
5 Decrease 90 by 40%
6 Decrease 40 by 30%
7 Decrease 60 by 15%
8 Decrease 80 by 85%
9 Decrease 20 by 15%
10 Decrease 20 by 45%
11 Decrease 40 by 95%
12 Decrease 60 by 75%
13 Decrease 700 by 70%
14 Decrease 640 by 50%
15 Decrease 900 by 40%
16 Decrease 440 by 10%
17 Decrease 840 by 60%
18 Decrease 960 by 70%
19 Decrease 800 by 95%
20 Decrease 400 by 45%
21 Decrease 360 by 25%
22 Decrease 960 by 75%
23 Decrease 200 by 5%
24 Decrease 320 by 75%
25 Decrease 900 by 35%

No. Correct	% Score	*Signature or Comment*

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Percentages

Decreasing a mixed numeral by a given %

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** **Remember:** The ***original*** quantity always equals 100%. **

Method

1. Subtract the percentage decrease from 100.

2. Multiply the mixed numeral by this number and divide by 100, simplifying where possible

Example

Decrease 4¼ by 20%.

100 - 20 = 80 $\qquad$ $4\frac{1}{4} = \frac{17}{4}$

$$\frac{\cancel{17}}{\cancel{4}} \times \frac{\cancel{80}^{4}}{\cancel{100}^{5}} \rightarrow \frac{17}{5} = 3\frac{2}{5}$$

1 Decrease $8\frac{1}{2}$ by 25% **2** Decrease $5\frac{3}{10}$ by 80% **3** Decrease $9\frac{1}{2}$ by 50%

4 Decrease $1\frac{4}{5}$ by 25% **5** Decrease $1\frac{1}{9}$ by 25% **6** Decrease $4\frac{8}{10}$ by 25%

7 Decrease $5\frac{5}{10}$ by 25% **8** Decrease $6\frac{1}{3}$ by 50% **9** Decrease $8\frac{3}{4}$ by 50%

10 Decrease $7\frac{1}{7}$ by 50% **11** Decrease $6\frac{1}{2}$ by 10% **12** Decrease $6\frac{2}{5}$ by 50%

13 Decrease $3\frac{2}{6}$ by 60% **14** Decrease $5\frac{1}{4}$ by 25% **15** Decrease $4\frac{2}{3}$ by 20%

16 Decrease $2\frac{1}{7}$ by 50% **17** Decrease $7\frac{1}{2}$ by 40% **18** Decrease $4\frac{2}{5}$ by 10%

19 Decrease $6\frac{1}{3}$ by 25% **20** Decrease $1\frac{3}{5}$ by 10% **21** Decrease $4\frac{1}{10}$ by 50%

22 Decrease $3\frac{7}{10}$ by 50% **23** Decrease $3\frac{2}{5}$ by 20% **24** Decrease $2\frac{4}{5}$ by 80%

25 Decrease $2\frac{3}{5}$ by 50%

No. Correct	% Score	*Signature or Comment*

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Percentages

Percentages greater than 100

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** **Remember:** The ***original*** quantity always equals 100%. **

Method
1. Multiply the quantity by the percentage number divided by 100 (simplifying where possible)

Example 1
How much is 200% of 21?

$$\frac{\cancel{200} \times 21}{\cancel{100}} = 42$$

Example 2
Find 500% of 2½

$$\frac{\cancel{500}}{\cancel{100}} \times \frac{5}{2} \rightarrow \frac{25}{2} = 12\frac{1}{2}$$

Now try these:

1 How much is 300% of 10½? **2** Find 250% of 7 **3** How much is 400% of 6½?

4 How much is 700% of 7½? **5** Find 500% of 18 **6** How much is 150% of 65?

7 How much is 101% of 100? **8** Find 101% of 200 **9** How much is 1 000% of 5?

10 Find 750% of 6 **11** Find 250% of 11 **12** How much is 800% of 8?

13 How much is 1 000% of 1? **14** Find 200% of ½ **15** Find 400% of ¼

16 Find 300% of $^1/_3$ **17** Find 500% of 200 **18** How much is 110% of 90?

19 How much is 101% of 1 000? **20** Find 450% of 1 **21** Find 200% of $^1/_{10}$

22 Find 1 000% of $^1/_{10}$ **23** Find 2 000% of 1 **24** How much is 1 000% of 100?

25 How much is 110% of 110?

No. Correct	% Score	*Signature or Comment*

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Decimals
Addition

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** **Important:** Before adding make sure you place the decimal points of each of the addends and the answer exactly underneath one another.

Method

1. *Write the first addend.* ***2.*** *Write all other addends underneath the first, ensuring that the decimal points fall in a straight line exactly underneath the decimal point of the first addend.* ***3.*** *Don't add just yet…. insert the decimal point of the answer, underneath the decimal points of the addends.* ***4.*** *Now add, from right to left*

Example 1
3.5 + 5.7

```
  3 . 5
+ 5 . 7
  9 . 2
```

Example 2
4.2 + 0.075

```
  4 . 2
+ 0 . 0 7 5
  4 . 2 7 5
```

Example 3
125 + 6.725

```
  1 2 5 . 0
+       6 . 7 2 5
  1 3 1 . 7 2 5
```

Example 4
6.2 + 1.7 + 8.4

```
  6 . 2
  1 . 7
+ 8 . 4
1 6 . 3
```

Example 5
7.8 + 0.059 + 0.37

```
  7 . 8
  0 . 0 5 9
+ 0 . 3 7
  8 . 2 2 9
```

Example 6
1 + 572.5 + 23.006 + 6.43

```
      1 . 0
  5 7 2 . 5
    2 3 . 0 0 6
+     6 . 4 3
  6 0 2 . 9 3 6
```

Now try these:

1 7.3 + 8.9 **2** 8.6 + 9.3 **3** 7.4 + 4.5 **4** 9.4 + 6.7 **5** 5.5 + 7.7

6 8.9 + 1.38 **7** 4.4 + 2.99 **8** 5.05 + 6.2 **9** 13 + 8.32 **10** 24 + 0.83

11 2.03 + 23.45 **12** 44.56 + 9.74 **13** 8.5 + 5.5 + 7.9 **14** 9.5 + 5 + 7.6

15 7.8 + 9.9 + 6.4 **16** 7.7 + 12.5 + 0.6 **17** 8 + 0.79 + 0.077 **18** 9 + 7 + 9.05

19 0.008 + 1 + 7.9 **20** 238 + 9 + 0.9 **21** 40.7 + 12 + 0.3 **22** 66.4 + 2 + 0.8

23 2 + 0.23 + 32.09 + 0.7 **24** 0.03 + 1 + 94.6 + 4 **25** 7 + 9.07 + 4 + 0.02

No. Correct	% Score	*Signature or Comment*

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Decimals
Subtraction

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** **Important:** Before subtracting make sure you place the decimal points of each number and the answer exactly underneath one another.

Method

1. *Write the bigger number.* ***2.*** *Write the number to be subtracted underneath the bigger one, ensuring that the decimal point falls in a straight line exactly underneath the decimal point of the bigger number.* ***3.*** *Don't subtract just yet….insert the decimal point of the answer, underneath the decimal points of the two numbers above.* ***4.*** *Now subtract, from right to left.*

Example 1
9.7 - 6.5

$$\begin{array}{r} 9.7 \\ -\ 6.5 \\ \hline 3.2 \end{array}$$

Example 2
8.4 – 4.9

$$\begin{array}{r} 8.4 \\ -\ 4.9 \\ \hline 3.5 \end{array}$$

Example 3
46.8 – 9.7

$$\begin{array}{r} 46.8 \\ -\ 9.7 \\ \hline 37.1 \end{array}$$

Example 4
48 – 6.4

$$\begin{array}{r} 48.0 \\ -\ 6.4 \\ \hline 41.6 \end{array}$$

Example 5
590.06 – 12.007

$$\begin{array}{r} 590.06 \\ -\ 12.007 \\ \hline 578.053 \end{array}$$

Example 6
668.06 – 0.089

$$\begin{array}{r} 668.06 \\ -\ 0.089 \\ \hline 667.971 \end{array}$$

Now try these:

1 8.5 – 2.3 2 9.9 – 4.7 3 7.4 – 5.9 4 5.0 – 3.9 5 7.6 – 6.9

6 10.4 – 4.7 7 14.7 – 6.8 8 34.8 – 7.9 9 63.6 – 0.09 10 70.04 – 5.99

11 64.02 – 55.088 12 7.1 – 0.034 13 8 – 7.999 14 50 – 23.93

15 30.24 - 17 16 300.2 – 0.7 17 100 – 9.99 18 42.87 – 3.9

19 6 – 5.01 20 30.2 – 29.99 21 33.33 – 0.99 22 43.85 – 42.9

23 40 – 3.26 24 20.76 – 7.95 25 43 – 41.99

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Decimals

Multiplication

** **The Rule:** The number of digits following the decimal point in your answer must equal the combined number of digits following the decimal points in the two numbers being multiplied.

Method

1. *Ignore –just for now- the decimal points. Also ignore any zeroes at the start of a number. Now multiply the two numbers in the same way you would multiply any two whole numbers.*

2. *Count the number of digits following the decimal point in each of the original numbers. Sum these.*

3. *Insert a decimal point in the answer you obtained in step 1, ensuring the number of digits that follow it equals the sum obtained in step 2.*

Example 1
1.2 x 0.8

```
      1 2
  x     8
  -------
      9 6

= 0 . 9 6
```

Example 2
25 x 1.25

```
      1 2 5
  x     2 5
  -------
      6 2 5
    2 5 0 0
  -------
    3 1 2 5

= 3 1 . 2 5
```

Example 3
1 000 x 0.34

```
    1 0 0 0
  x     3 4
  -------
    4 0 0 0
  3 0 0 0 0
  -------
  3 4 0 0 0

= 3 4 0
```

Example 4
0.25 x 2.56

```
    2 5 6
  x   2 5
  -------
  1 2 8 0
  5 1 2 0
  -------
  6 4 0 0

= 0 . 6 4
```

Example 5
12.35 x 0.08

```
    1 2 3 5
  x       8
  -------
    9 8 8 0

= 0 . 9 8 8
```

Example 6
23.66 x 1.35

```
      2 3 6 6
  x     1 3 5
  -------
    1 1 8 3 0
    7 0 9 8 0
  2 3 6 6 0 0
  -------
  3 1 9 4 1 0

= 3 1 . 9 4 1
```

Now try these:

1 7.5 x 0.6 **2** 9.4 x 0.3 **3** 0.8 x 8.3 **4** 0.3 x 5.7

5 34 x 2.85 **6** 27 x 3.64 **7** 5.3 x 45 **8** 9.9 x 51

9 2 000 x 0.49 **10** 3 000 x 0.28 **11** 0.24 x 4000 **12** 0.33 x 6 000

13 0.45 x 4.2 **14** 6.5 x 9.2 **15** 56.8 x 0.5 **16** 8.5 x 8.2

17 4.52 x 0.05 **18** 56.5 x 0.02 **19** 0.01 x 789.8 **20** 0.72 x 77.5

21 54.2 x 2.5 **22** 63.5 x 7.2 **23** 4.2 x 0.85 **24** 9.08 x 0.2

25 6.5 x 9.2

No. Correct	% Score	*Signature or Comment*

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Decimals
Division

** **The Rule:** The number of digits following the decimal point in your answer must equal the number of digits following the decimal point in the dividend *minus* the number of digits following the decimal point in the divisor.

Method

1. *-If the divisor is a whole number proceed to step 2-*
Make the divisor a whole number by shifting the decimal point the required number of places to the right.
Now shift the decimal point of the dividend the same number of places right.
NB Remember, a whole number can be followed by a decimal point, then a zero, eg 62 is 62.0.
2. *Directly above the dividend's decimal point (where you write your answer) insert a decimal point.*
3. *Now carry out the division as you would any other division problem, adding zeroes to the end of the divisor if required.*

Example 1
1.5 ÷ 3

$$\begin{array}{r|l} & 0\ .\ 5 \\ \hline 3 & 1\ .\ {}^{1}5 \end{array}$$
$= 0\ .\ 5$

Example 2
45 ÷ 0.3
= 450 ÷ 3

$$\begin{array}{r|l} & 1\ 5\ 0 \\ \hline 3 & 4\ {}^{1}5\ 0 \end{array}$$
$= 1\ 5\ 0$

Example 3
2.25 ÷ 1.5
= 22.5 ÷ 15

$$\begin{array}{r|l} & 1\ .\ 5 \\ \hline 1\ 5 & 2\ 2\ .\ {}^{7}5 \end{array}$$
$= 1\ .\ 5$

Example 4
80.8 ÷ 0.004
= 80 800 ÷ 4

$$\begin{array}{r|l} & 2\ 0\ 2\ 0\ 0 \\ \hline 4 & 8\ 0\ 8\ 0\ 0 \end{array}$$
$= 2\ 0\ 2\ 0\ 0$

Example 5
4.8 ÷ 40

$$\begin{array}{r|l} & 0\ .\ 1\ 2 \\ \hline 4\ 0 & 4\ .\ {}^{4}8\ {}^{8}0 \end{array}$$
$= 0\ .\ 1\ 2$

Example 6
0.96 ÷ 80

$$\begin{array}{r|l} & 0\ .\ 0\ 1\ 2 \\ \hline 8\ 0 & 0\ .\ 9\ {}^{9}6\ {}^{16}0 \end{array}$$
$= 0\ .\ 0\ 1\ 2$

Example 7
1.05 ÷ 70

$$\begin{array}{r|l} & 0\ .\ 0\ 1\ 5 \\ \hline 7\ 0 & 1\ .\ 0\ {}^{10}5\ {}^{35}0 \end{array}$$
$= 0\ .\ 0\ 1\ 5$

Now try these:

1 2.4 ÷ 8 **2** 3.6 ÷ 4 **3** 9.6 ÷ 6 **4** 7.2 ÷ 6 **5** 7.2 ÷ 0.6

6 7.2 ÷ 60 **7** 13.6 ÷ 6.8 **8** 31.6 ÷ 7.9 **9** 63.9 ÷ 0.09 **10** 82.6 ÷ 5.9

11 604.8 ÷ 54 **12** 13.6 ÷ 0.034 **13** 0.158 ÷ 7.9 **14** 5 ÷ 0.0025

15 8.5 ÷ 170 **16** 0.034 ÷ 0.17 **17** 999 ÷ 0.999 **18** 0.138 ÷ 6.9

19 1180 ÷ 5.9 **20** 11.6 ÷ 0.29 **21** 4950 ÷ 0.99 **22** 0.294 ÷ 42

23 400 ÷ 0.08 **24** 1.38 ÷ 6.9

25 1.64 ÷ 0.041

No. Correct	% Score	*Signature or Comment*

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Decimals

Finding a decimal of whole numbers

Working out space
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** **The Rule:** The number of digits following the decimal point in your answer must equal the number of digits following the decimal point in the decimal number being multiplied.

Method

1. *Ignore –just for now- the decimal point. Also ignore –for now- any zeroes at the start of the decimal number.*
Now multiply the two numbers in the same way you would multiply any two whole numbers.
2. *Count the number of digits following the decimal point in the original decimal number.*
3. *Insert a decimal point in the answer you obtained in step 1, ensuring the number of digits that follow it equals the number of digits obtained in step 2.*
4. *Simplify if necessary, as in examples 2-4.*

Example 1
Find 0.6 of 2
6 x 2 = 12
1.2

Example 2
Find 0.6 of 20
6 x 20 = 120
➔ 12.0
12

Example 3
Find 0.25 of 80
25 x 80 = 2 000
➔ 20.00
20

Example 4
Find 0.25 of 800
25 x 800 = 20 000
➔ 200.0
200

Now try these:

1 Find 0.3 of 6

2 Find 0.4 of 12

3 Find 0.9 of 20

4 Find 0.1 of 53

5 Find 0.25 of 4

6 Find 0.25 of 80

7 Find 0.75 of 4

8 Find 0.75 of 40

9 What is 0.65 of 12?

10 What is 0.35 of 4?

11 What is 0.28 of 15?

12 How much is 0.9 of 9?

13 How much is 0.9 of 900?

14 How much is 0.55 of 40?

15 How much is 0.82 of 200?

16 Find 0.99 of 30

17 Find 0.99 of 3

18 Find 0.99 of 3 000

19 Find 0.11 of 11

20 Find 0.12 of 9

21 Find 0.09 of 200

22 What is 0.999 of 20?

23 What is 0.015 of 600?

24 What is 0.229 of 30?

25 How much is 0.186 of 1 000?

No. Correct	% Score	*Signature or Comment*

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Decimals

Finding a decimal of percentage quantities

Working out space
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** **The Rule:** The number of digits following the decimal point in your answer must equal the number of digits following the decimal point in the decimal number being multiplied.

Method

1. *Ignore –just for now- the decimal point. Also ignore –for now- any zeroes at the start of the decimal number.*
Now multiply this modified decimal number by the percentage number, in the same way you would multiply any two whole numbers.
2. *Count the number of digits following the decimal point in the original decimal number.*
3. *Insert a decimal point in the answer you obtained in step 1, ensuring the number of digits that follow it equals the number of digits obtained in step 2.*
4. *Simplify if necessary, as in examples 1, 3 and 4.*
NB answers must have a % sign after the number.

Example 1
Find 0.6 of 70%
6 x 70 = 420
➔ 42.0
42%

Example 2
Find 0.3 of 15%
3 x 15 = 45
➔ 4.5
4.5%

Example 3
Find 0.25 of 60%
25 x 60 = 1 500
➔ 15.00
15%

Example 4
Find 0.75 of 12%
75 x 12 = 900
➔ 9.00
9%

Now try these:

1 Find 0.7 of 50%
2 Find 0.9 of 90%
3 Find 0.2 of 30%
4 Find 0.8 of 65%

5 Find 0.25 of 90%
6 Find 0.75 of 80%
7 Find 0.25 of 30%
8 Find 0.75 of 20%

9 What is 0.8 of 55%?
10 What is 0.35 of 60%?
11 What is 0.35 of 40%?

12 How much is 0.7 of 70%?
13 How much is 0.1 of 89%?

14 How much is 0.85 of 80%?
15 How much is 0.44 of 100%?

16 Find 0.25 of 60%
17 Find 0.53 of 10%
18 Find 0.89 of 100%

19 Find 0.9 of 100%
20 Find 0.1 of 11%
21 Find 0.09 of 100%

22 What is 0.99 of 10%?
23 What is 0.15 of 20%?
24 What is 0.78 of 50%

25 How much is 0.49 of 60%?

No. Correct	% Score	*Signature or Comment*

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Answers

page 4	**Fractions Addition** Simple Fractions							
1 $\frac{7}{10}$	2 $\frac{1}{2}$	3 $\frac{13}{14}$	4 $\frac{19}{20}$	5 $\frac{8}{9}$	6 $\frac{5}{6}$	7 $\frac{14}{15}$	8 $\frac{11}{12}$	9 $\frac{9}{14}$
10 $1\frac{5}{9}$	11 $1\frac{5}{8}$	12 $1\frac{4}{9}$	13 $\frac{5}{6}$	14 $\frac{13}{20}$	15 $\frac{14}{15}$	16 $\frac{19}{20}$	17 $\frac{11}{12}$	18 $\frac{13}{14}$
19 $\frac{11}{15}$	20 $1\frac{7}{30}$	21 $1\frac{5}{12}$	22 $1\frac{43}{60}$	23 $1\frac{5}{18}$	24 $1\frac{2}{33}$	25 $1\frac{17}{30}$		

page 5	**Fractions Addition** Mixed Numerals							
1 $4\frac{5}{6}$	2 $8\frac{1}{4}$	3 $5\frac{7}{10}$	4 $8\frac{1}{2}$	5 $9\frac{15}{22}$	6 $8\frac{8}{15}$	7 $6\frac{7}{12}$	8 $10\frac{2}{15}$	9 $9\frac{5}{18}$
10 $11\frac{1}{16}$	11 $13\frac{5}{14}$	12 $11\frac{4}{9}$	13 $6\frac{19}{20}$	14 $3\frac{11}{12}$	15 $16\frac{9}{10}$	16 $14\frac{29}{35}$	17 $8\frac{32}{63}$	18 $8\frac{52}{55}$
19 $13\frac{5}{12}$	20 $12\frac{17}{30}$	21 $9\frac{8}{35}$	22 $10\frac{1}{36}$	23 $8\frac{7}{60}$	24 $8\frac{11}{30}$	25 $8\frac{7}{15}$		

page 6	**Fractions Subtraction** Simple Fractions							
1 $\frac{3}{10}$	2 $\frac{1}{6}$	3 $\frac{9}{14}$	4 $\frac{1}{8}$	5 $\frac{1}{4}$	6 $\frac{1}{9}$	7 $\frac{2}{5}$	8 $\frac{1}{5}$	9 $\frac{2}{9}$
10 0	11 $\frac{3}{10}$	12 $\frac{5}{14}$	13 $\frac{5}{12}$	14 $\frac{19}{40}$	15 $\frac{7}{36}$	16 $\frac{7}{24}$	17 $\frac{5}{36}$	18 $\frac{9}{35}$
19 $\frac{7}{30}$	20 $\frac{1}{42}$	21 $\frac{11}{36}$	22 $\frac{2}{15}$	23 $\frac{11}{20}$	24 $\frac{17}{45}$	25 $\frac{1}{18}$		

page 7	**Fractions Subtraction** Mixed Numerals							
1 $3\frac{1}{14}$	2 $5\frac{1}{9}$	3 $2\frac{1}{6}$	4 $2\frac{1}{7}$	5 $4\frac{9}{10}$	6 $\frac{5}{8}$	7 $1\frac{15}{16}$	8 $3\frac{9}{10}$	9 $5\frac{5}{21}$
10 $3\frac{3}{14}$	11 $2\frac{13}{16}$	12 $3\frac{1}{2}$	13 $4\frac{3}{40}$	14 $4\frac{1}{6}$	15 $\frac{15}{22}$	16 $\frac{33}{70}$	17 $2\frac{11}{12}$	18 $4\frac{34}{35}$
19 $1\frac{23}{24}$	20 $\frac{1}{20}$	21 $6\frac{9}{40}$	22 $5\frac{13}{30}$	23 $\frac{23}{30}$	24 $\frac{5}{6}$	25 $3\frac{27}{35}$		

page 8	**Fractions Multiplication** Simple Fractions							
1 $\frac{1}{6}$	2 $\frac{1}{2}$	3 $\frac{1}{3}$	4 $\frac{1}{2}$	5 $\frac{2}{15}$	6 $\frac{2}{7}$	7 $\frac{2}{3}$	8 $\frac{2}{5}$	9 $\frac{1}{3}$
10 $\frac{3}{10}$	11 $\frac{3}{16}$	12 $\frac{1}{8}$	13 $\frac{1}{2}$	14 $\frac{1}{24}$	15 $\frac{1}{6}$	16 $\frac{4}{35}$	17 $\frac{5}{18}$	18 $\frac{2}{15}$
19 $\frac{3}{5}$	20 $\frac{2}{3}$	21 $\frac{1}{6}$	22 $\frac{2}{15}$	23 $\frac{1}{2}$	24 $\frac{2}{5}$	25 $\frac{1}{3}$		

page 9	**Fractions Multiplication** Mixed Numerals							
1 $3\frac{1}{8}$	2 $6\frac{3}{5}$	3 4	4 $5\frac{29}{32}$	5 $6\frac{2}{5}$	6 $6\frac{4}{5}$	7 $19\frac{1}{3}$	8 $4\frac{2}{5}$	9 $7\frac{1}{2}$
10 $8\frac{4}{5}$	11 $21\frac{2}{3}$	12 6	13 $3\frac{11}{15}$	14 21	15 7	16 $6\frac{3}{8}$	17 $1\frac{7}{9}$	18 $7\frac{4}{5}$
19 $39\frac{1}{9}$	20 20	21 $6\frac{3}{5}$	22 8	23 12	24 $12\frac{2}{3}$	25 $25\frac{1}{2}$		

page 10	**Fractions Division** Simple Fractions							
1 $\frac{9}{10}$	2 $\frac{9}{10}$	3 $\frac{2}{5}$	4 1	5 $\frac{3}{8}$	6 $1\frac{1}{2}$	7 $\frac{4}{15}$	8 $\frac{25}{32}$	9 $\frac{3}{4}$
10 2	11 $2\frac{11}{12}$	12 $1\frac{3}{4}$	13 $4\frac{4}{7}$	14 $1\frac{1}{3}$	15 $\frac{5}{7}$	16 $\frac{5}{8}$	17 $2\frac{2}{5}$	18 $1\frac{5}{11}$
19 $1\frac{1}{3}$	20 $\frac{2}{3}$	21 $1\frac{1}{2}$	22 $3\frac{1}{3}$	23 $\frac{4}{5}$	24 $2\frac{1}{4}$	25 $2\frac{1}{2}$		

page 11	**Fractions Division** Mixed Numerals							
1 $\frac{2}{3}$	2 $\frac{5}{7}$	3 $\frac{11}{48}$	4 $1\frac{7}{8}$	5 $2\frac{5}{8}$	6 $\frac{1}{2}$	7 $1\frac{1}{14}$	8 1	9 $\frac{1}{2}$
10 $1\frac{1}{4}$	11 $3\frac{1}{2}$	12 $1\frac{2}{5}$	13 $\frac{3}{4}$	14 $\frac{3}{4}$	15 $\frac{5}{22}$	16 $2\frac{6}{11}$	17 $2\frac{6}{11}$	18 $2\frac{1}{2}$
19 $\frac{15}{16}$	20 $1\frac{1}{2}$	21 $1\frac{2}{5}$	22 $4\frac{4}{11}$	23 $1\frac{1}{15}$	24 $1\frac{3}{11}$	25 $\frac{2}{3}$		

Continued

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Answers *continued*

page 12	**Fractions** Finding a fraction of whole numbers							
1 15	2 23	3 19	4 14	5 14	6 13	7 34	8 42	9 69
10 52	11 42	12 48	13 147	14 124	15 147	16 58	17 93	18 110
19 120	20 176	21 260	22 205	23 142	24 444	25 360		

page 13	**Fractions** Finding a fraction of decimal quantities							
1 10.7	2 2.1	3 21.2	4 6.03	5 6.46	6 13	7 8.6	8 0.76	9 0.6
10 0.42	11 0.36	12 0.192	13 4.3	14 0.009	15 0.014	16 0.003	17 0.004	18 0.021
19 0.005	20 0.012	21 0.015	22 0.1	20 0.02	24 0.724	25 0.035		

page 14	**Percentages** Finding a percentage of whole numbers							
1 54	2 24	3 49	4 81	5 12	6 18	7 8	8 72	9 4
10 6	11 17.5	12 40.5	13 76	14 4	15 32.5	16 630	17 360	18 80
19 9	20 640	21 1	22 385	23 90	24 855	25 3		

page 15	**Percentages** Finding a percentage of decimal quantities							
1 25.5	2 3.9	3 1.9	4 10	5 6.2	6 29.68	7 3.06	8 56.25	9 245.8
10 18.24	11 36.24	12 60.6	13 77.1	14 44.64	15 3.22	16 8.172	17 0.888	18 2.568
19 1.48	20 1.86	21 0.555	22 0.204	23 0.384	24 0.204	25 0.534		

page 16	**Percentages** Increasing a whole number by a given %							
1 102	2 90	3 60	4 11	5 99	6 84	7 100	8 54	9 37
10 69	11 132	12 39	13 850	14 552	15 960	16 476	17 285	18 968
19 770	20 330	21 475	22 756	23 495	24 63	25 1000		

page 17	**Percentages** Increasing a mixed numeral by a given %							
1 $6\frac{9}{16}$	2 $13\frac{1}{8}$	3 $3\frac{9}{10}$	4 $5\frac{11}{20}$	5 $1\frac{19}{25}$	6 $6\frac{3}{20}$	7 $10\frac{1}{2}$	8 $7\frac{11}{12}$	9 $4\frac{21}{25}$
10 $2\frac{1}{4}$	11 $10\frac{5}{7}$	12 $6\frac{7}{8}$	13 $14\frac{1}{4}$	14 $5\frac{3}{5}$	15 $3\frac{3}{14}$	16 $9\frac{27}{50}$	17 $4\frac{2}{25}$	18 $7\frac{3}{20}$
19 $5\frac{1}{3}$	20 $1\frac{7}{18}$	21 $5\frac{1}{25}$	22 $9\frac{3}{5}$	23 $10\frac{5}{8}$	24 $9\frac{1}{2}$	25 6		

page 18	**Percentages** Decreasing a whole number by a given %							
1 40	2 48	3 54	4 21	5 54	6 28	7 51	8 12	9 17
10 11	11 2	12 15	13 210	14 320	15 540	16 396	17 336	18 288
19 40	20 220	21 270	22 240	23 190	24 80	25 585		

page 19	**Percentages** Decreasing a mixed numeral by a given %							
1 $6\frac{3}{8}$	2 $1\frac{3}{50}$	3 $4\frac{3}{4}$	4 $1\frac{7}{20}$	5 $\frac{5}{6}$	6 $3\frac{3}{5}$	7 $4\frac{1}{8}$	8 $3\frac{1}{6}$	9 $4\frac{3}{8}$
10 $3\frac{4}{7}$	11 $5\frac{17}{20}$	12 $3\frac{1}{5}$	13 $1\frac{1}{3}$	14 $3\frac{15}{16}$	15 $3\frac{11}{15}$	16 $1\frac{1}{14}$	17 $4\frac{1}{2}$	18 $3\frac{24}{25}$
19 $4\frac{3}{4}$	20 $1\frac{11}{25}$	21 $2\frac{1}{20}$	22 $1\frac{17}{20}$	23 $2\frac{18}{25}$	24 $\frac{14}{25}$	25 $1\frac{3}{10}$		

continued

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Answers

page 20	**Percentages** Percentages greater than 100							
1 $31\frac{1}{2}$	2 $17\frac{1}{2}$	3 26	4 $52\frac{1}{2}$	5 90	6 $97\frac{1}{2}$	7 101	8 202	9 50
10 45	11 $27\frac{1}{2}$	12 64	13 10	14 1	15 1	16 1	17 1000	18 99
19 1010	20 $4\frac{1}{2}$	21 $\frac{1}{5}$	22 1	23 20	24 1000	25 121		
page 21	**Decimals Addition**							
1 16.2	2 17.9	3 11.9	4 16.1	5 13.2	6 10.28	7 7.39	8 11.25	9 21.32
10 24.83	11 25.48	12 54.3	13 21.9	14 22.1	15 24.1	16 20.8	17 8.867	18 25.05
19 8.908	20 247.9	21 53	22 69.2	23 35.02	24 99.63	25 20.09		
page 22	**Decimals Subtraction**							
1 6.2	2 5.2	3 1.5	4 1.1	5 0.7	6 5.7	7 7.9	8 26.9	9 63.51
10 64.05	11 8.932	12 7.066	13 0.001	14 26.07	15 13.24	16 299.5	17 90.01	18 38.97
19 0.99	20 0.21	21 32.34	22 0.95	23 36.74	24 12.81	25 1.01		
page 23	**Decimals Multiplication**							
1 4.5	2 2.82	3 6.64	4 1.71	5 96.9	6 98.28	7 238.5	8 504.9	9 980
10 840	11 960	12 1980	13 1.89	14 59.8	15 28.4	16 69.7	17 0.226	18 1.13
19 7.898	20 55.8	21 135.5	22 457.2	23 3.57	24 1.816	25 59.8		
page 24	**Decimals Division**							
1 0.3	2 0.9	3 1.6	4 1.2	5 12	6 0.12	7 2	8 4	9 710
10 14	11 11.2	12 400	13 0.02	14 2000	15 0.05	16 0.2	17 1000	18 0.02
19 200	20 40	21 5000	22 0.007	23 5000	24 0.2	25 40		
page 25	**Decimals** Finding a decimal of whole numbers							
1 1.8	2 4.8	3 18	4 5.3	5 1	6 20	7 3	8 30	9 7.8
10 1.4	11 4.2	12 8.1	13 810	14 22	15 164	16 29.7	17 2.97	18 2970
19 1.21	20 1.08	21 18	22 19.98	23 9	24 6.87	25 186		
page 26	**Decimals** Finding a decimal of percentage quantities							
1 35%	2 81%	3 6%	4 52%	5 22.5%	6 60%	7 7.5%	8 15%	9 44%
10 21%	11 14%	12 49%	13 8.9%	14 68%	15 44%	16 15%	17 5.3%	18 89%
19 90%	20 1.1%	21 9%	22 9.9%	23 3%	24 39%	25 29.4%		

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