

fs4u

Calculating with Decimals

‘How To’ Booklet 10

By the end of this booklet you should be able to add, subtract, multiply and divide decimals. No extra equipment is required - **DO NOT USE A CALCULATOR.**

Addition and Subtraction

RULE

Do the calculation as you would do any ordinary addition and subtraction, then put the decimal point in line in your answer.

Examples

Examples

1.2 + <u>2.5</u> <u>3.7</u>	2.4 + <u>3.7</u> <u>6.1</u> 1	100.1 + <u>40.92</u> <u>147.145</u> 1	120.007 - <u>93.098</u> <u>26.909</u>	^{2.1} 3.1 - <u>1.6</u> <u>1.5</u>	3.9 - <u>1.3</u> <u>2.6</u>
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Now practise these, but remember :-

1	You must keep the decimal points and figures in their correct columns.
2	Any spaces between figures or between figures and the decimal point must be marked by noughts.

1	2.1 + <u>1.1</u>	2	3.4 + <u>1.4</u>	3	2.0 + <u>2.2</u>	4	2.4 + <u>2.3</u>
5	2.7 + <u>2.3</u>	6	4.3 + <u>3.8</u>	7	3.9 + <u>3.7</u>	8	3.8 + <u>4.5</u>
9	25.3 + 47.2 <u>14.1</u>	10	3.046 + 0.184 <u>2.408</u>	11	1.64 + 44.35 <u>32.07</u>	12	6.9 - <u>2.0</u>
13	7.7 - <u>3.2</u>	14	6.8 - <u>2.7</u>	15	8.8 - <u>4.6</u>	16	0.463 - <u>0.295</u>
17	0.42 - <u>0.228</u>	18	3.442 - <u>1.076</u>	19	5.1 - <u>4.982</u>	20	1.53 - <u>0.444</u>
21	5.241 - <u>4.953</u>						

Multiply by 10, 100 etc.

RULE

To multiply by 10, move the decimal point one place to the right.

To multiply by 100, move the decimal point two places to the right.

To multiply by 1000, move the decimal point three places to the right.

NOTE

1	The number of noughts in 10; 100; 1000, tells you how many places to move the decimal point. (That is one or 2 or 3).
2	Sometimes you may have to put noughts on the end of the number in order to be able to move the decimal point the right number of places. (See examples d) and e).

Example $4.7 \times 10 = 47$

Steps: 4 whole ones multiplied by 10 gives 40

7 tenths (0.7) multiplied by 10 gives 7 whole ones making altogether 47.

More Examples

a	$26.3 \times 10 = 263$	b	$3.62 \times 10 = 36.2$	c	$5.46 \times 100 = 546$
d	$6.7 \times 100 = 670$	e	$48.9 \times 1000 = 48900$		

Now Try These:

1	6.5×10	2	2.7×10	3	11.4×10
4	15.8×10	5	32.5×10	6	1.06×10
7	3.05×10	8	4.04×100	9	6.32×100
10	32.5×100	11	91.3×100	12	6.5×100
13	7.8×100	14	3.9×100	15	1.375×1000
16	6.218×1000	17	5.062×1000	18	1.009×1000
19	1.26×1000	20	9.41×1000	21	1.4×1000

Dividing by 10, 100, 1000 etc

RULE

To multiply by 10, move the decimal point one place to the right.

To multiply by 100, move the decimal point two places to the right.

To multiply by 1000, move the decimal point three places to the right.

NOTE

1	The number of noughts in 10; 100; 1000, tells you how many places to move the decimal point. (That is one or 2 or 3).
2	Sometimes you may have to put noughts on the front of the number in order to be able to move the decimal point the right number of places. (See examples f).
3	In numbers like 6.50, the final nought can be left off to give 6.5 because the 0.50 does NOT represent fifty.

Example $47 \div 10 = 4.7$

Steps: 40 whole ones divided by 10 gives 4
7 units divided by 10 give 7 tenths (0.7) making altogether 4.7.

More Examples

a	$36.1 \div 10 = 3.61$	b	$61.3 \div 10 = 6.13$	c	$254 \div 10 = 25.4$
d	$650 \div 100 = 6.5$	e	$54321 \div 1000 = 54.321$	f	$25.1 \div 1000 = 0.0251$

Now Its Your Turn:

1	$56 \div 10$	2	$27 \div 10$	3	$31.2 \div 10$
4	$66.3 \div 10$	5	$312 \div 10$	6	$784 \div 10$
7	$369 \div 10$	8	$132 \div 100$	9	$487 \div 100$
10	$693 \div 100$	11	$4123 \div 100$	12	$7135 \div 100$
13	$5146 \div 100$	14	$8237 \div 100$	15	$6235 \div 100$
16	$9168 \div 1000$	17	$3156 \div 1000$	18	$265.3 \div 1000$
19	$947.2 \div 1000$	20	$12.4 \div 1000$	21	$64.5 \div 1000$

Multiplication of Decimals

Example 1 9.25×7

Steps

- 1 Multiply as if using whole numbers
- 2 Count the number of figures after the decimal point in the question : $9.\underline{25} \times 7$
There are two such figures.
- 3 Count two places from the right in the answer and place the decimal point.

ANSWER $64.\underline{75}$

$ \begin{array}{r} 925 \\ \times \quad 7 \\ \hline 6475 \end{array} $
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Example 2 6.35×8.5

Starting with **left-hand** figure

$$\begin{array}{r}
 635 \\
 \times \quad 85 \\
 \hline
 50800 \\
 \quad 3175 \\
 \hline
 \underline{53975}
 \end{array}$$

Starting with **right-hand** figure

$$\begin{array}{r}
 635 \\
 \times \quad 85 \\
 \hline
 3175 \\
 \underline{50800} \\
 \underline{53975}
 \end{array}$$

Steps

- 1 Multiply as if using whole numbers as in example 1
- 2 This time there are three figures **after the decimal points** in the sum: $6.\underline{35} \times 8.\underline{5}$
- 3 Therefore count three places from the right in the answer and place the decimal point.

5 3 . 9 7 5 Answer $53.\underline{975}$

These shouldn't be too difficult:

1	2.1×3	2	1.2×4	3	2.3×5
4	3.2×6	5	2.2×7	6	4.2×8
7	1.3×9	8	2.6×2	9	3.4×4
10	3.6×6	11	1.8×8	12	3.7×3
13	5.1×7	14	7.1×8	15	2.9×7
16	4.2×4	17	6.5×5	18	8.2×6
19	5.9×8	20	9.3×3	21	0.55×2

Division of Decimals

Example

$$\begin{array}{r} 4.4 \\ 3 \overline{) 13.14} \end{array}$$

$$\begin{array}{r} 4.25 \\ 4 \overline{) 17.10^20} \end{array}$$

Some for you to do:

1	$4.2 \div 3$	2	$5.6 \div 4$	3	$7.5 \div 5$
4	$8.4 \div 6$	5	$9.8 \div 7$	6	$10.4 \div 8$
7	$11.7 \div 9$	8	$14.3 \div 11$	9	$16.8 \div 12$
10	$0.54 \div 3$	11	$0.64 \div 4$	12	$0.85 \div 5$
13	$0.96 \div 6$	14	$1.05 \div 7$	15	$1.44 \div 8$
16	$1.98 \div 9$	17	$1.87 \div 11$	18	$1.92 \div 12$
19	$0.138 \div 6$	20	$0.133 \div 7$	21	$0.216 \div 9$