

Decimals - adding, subtracting, multiplying & dividing.

To add decimals you need to line up the decimal points.

e.g. $102.8 + 15.21$

1	0	2	.	8	
	1	5	.	2	1
1	1	8	.	0	1

To subtract decimals you need to line up the decimal points.

e.g. $92.69 - 10.4$

9	2	.	6	9
1	0	.	4	
8	2	.	2	9

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To multiply a decimal by a whole number you need to multiply without decimal points and then put the decimal point back into the answer. Count up how many numbers are after the decimal point in the decimal number that you are multiplying. Your answer should have the same number of digits after the decimal point

e.g. 0.22×102

	1	0	2
X		2	2
	2	0	4
2	0	4	0
2	2	4	4

0.22 has 2 decimal places, so the answer has 2 decimal places:
22.44

To multiply a decimal by another decimal you need to:

1. Take out the decimal points so that they are whole numbers and use your usual method to multiply them.
2. Then put the decimal point in the answer - count the total number of decimal places in both numbers being multiplied. Starting at the end of the answer, count the same number of decimal places and insert the decimal point.

e.g. 0.03×1.1

		3
x	1	1
	3	3

0.03 (has 2 digits after the point)

1.1 (has 1 digit after the point)

so you need 3 digits after the decimal point in your answer

$$0.03 \times 1.1 = 0.033 \quad (\text{add zeroes if needed})$$

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To divide a decimal by a whole number, divide as usual but keep the decimal points aligned!

e.g. $5.75 \div 5 =$

$$\begin{array}{r} 1.15 \\ 5 \overline{)5.75} \end{array} = 1.15$$

Note that the decimal points are lined up.

To divide a decimal by a decimal, change the number you are dividing by to a whole number. Do this by multiplying by 10, 100 or 1000. Do exactly the same to the number you are dividing.

Divide, using either long or short division, to find the answer.

e.g. $31.52 \div 2.4 =$

Multiply 2.4 by 10 to make it into the whole number 24.

Do the same to 31.52 ($31.52 \times 10 = 315.20$)

$$\begin{array}{r} 13.13 \text{ (correct to 2dp)} \\ \hline 24 \overline{)315.20} \\ \underline{24} \\ 75 \\ \underline{72} \\ 32 \\ \underline{24} \\ 80 \end{array}$$

1x	24	=	24
2x	24	=	48
3x	24	=	72
4x	24	=	96
5x	24	=	120

A table may help