Place Values

25.386 = 2 x 10 + 5 x 1 + 3 x 0.1 + 8 x 0.01 + 6 x 0.001

Rounding 25.386:
to the ones ≈ 25
to the tenths ≈ 25.4
to the hundredths ≈ 25.39

25.386 × 10 = 253.86   25.386 = 25.3860
25.386 ÷ 10 = 2.5386   25.386 > 25.3086

$0.1 = \frac{1}{10}$ $0.01 = \frac{1}{100}$ $0.3 = \frac{3}{10}$ $0.38 = \frac{38}{100}$ $0.386 = \frac{386}{1000}$

Basic Operations

Addition: 3.21 + 4.5 = 7.71

Line up the decimal points...

$$\begin{array}{r} 3.21 \\ +\ 4.5 \\ \hline 7.71 \end{array}$$

Add as usual!

and just drag that decimal point straight down!

528 + 7.49 = 535.49

Line up the decimal points...

$$\begin{array}{r} \overset{1}{5}28.00 \\ +\quad 7.49 \\ \hline 535.49 \end{array}$$

Just turn that whole number into a decimal!

Regroup if you need to

Subtraction: 8.97 − 2.82 = 6.15

Line up the decimal points...

$$\begin{array}{r} 8.97 \\ -\ 2.82 \\ \hline 6.15 \end{array}$$

Subtract as usual!

and just drag that decimal point straight down!

3.8 − 1.26 = 2.54

$$\begin{array}{r} 3.80 \\ -\ 1.26 \end{array}$$

Stick a zero in there so you can do your borrowing (regrouping)!

$$\begin{array}{r} 3.\overset{7}{8}0 \\ -\ 1.26 \\ \hline 2.54 \end{array}$$

Multiplication: 3.1 x 5.9 = 18.29

Line up the numbers on the right

Count the spots behind the decimals

$$\begin{array}{r} 3.1 \\ \times\ 5.9 \\ \hline 279 \\ +155\quad \\ \hline 18.29 \end{array}$$

1 Decimal Place
1 Decimal Place
2 Decimal Places

2.35 x 7.8 = 18.33

$$\begin{array}{r} 2.35 \\ \times\ 7.8 \\ \hline 1880 \\ +1645\quad \\ \hline 18.330 \end{array}$$

2 Decimal Places
1 Decimal Place
3 Decimal Places

Division: 2.35 ÷ 5 = 0.47

Put the decimal point right above the other one

$$\begin{array}{r} .47 \\ 5\overline{)2.35} \\ -2\ 0\downarrow \\ \hline 35 \\ -35 \\ \hline \end{array}$$

7.5 ÷ 0.25 = 30

Move the decimals to the right on both until you are dividing BY a whole number

$$.25\overline{)7.50}$$
add a zero

$$\begin{array}{r} 30 \\ 25\overline{)750} \\ -75\downarrow \\ \hline 00 \\ -0 \\ \hline \end{array}$$

Exercises: Ashley is making cookies for her office's Christmas party.

1. Each batch of cookies mix need 0.45 cups of sugar. If Ashley planned to 3 batches of cookies, how much sugar does she need?	2. Ashley found 2 boxes of sugar in the kitchen. The green box says 1.26 kg and the red box says 1.026 kg. Which box contains more sugar?
3. She has 2 bags of flour. The smaller bag contains 0.75 kg of flour and the bigger bag has 0.65 kg more flour. How much flour does she have in total?	4. After she finished making the cookies, she has 1.345 kg of flour left. How much flour did she use?
5. Ashley ended up making 2.5 batches of cookies. Each batch of cookies is 8.9 oz. What is the weight of 2.5 batches of cookies?	6. Ashley's cookies are of the same size, and she made 2.5 batches of cookies. How much flour did she use for one batch?

Answer Key

1. $0.45 \times 3 = 1.35$ She needs 1.35 cups of sugar.	2. $1.26 > 1.026$ The green box contains more sugar.

3. $0.75 + 0.75 + 0.65 = 2.15$
She has 2.64 kg of flour in total.
 	
  1   1
  0.75   1.5
+ 0.75   + 0.65
  1.50   2.15
	4. $2.15 - 1.345 = 0.805$ She used 0.805 kg of flour.
	
	   1 4
	  2 . 1 5 0
	- 1 . 3 4 5
	  0 . 8 0 5

5. $8.9 \times 3.5 = 31.15$
The weight of 3.5 batches of cookies is 31.15 oz.
 	
   2 4
   8 . 9 ⟵ one decimal place
x 3 . 5 ⟵ one decimal place
  4 4 5
+2 6 7
3 1 . 1 5 ⟵ two decimal places
	6. $0.805 \div 3.5 = 0.23$
	She used 0.23 kg of flour for one batch.
	
	            0 . 2 3
	3.5 ⟌ 0.8 0 5 ⟹ 35 ⟌ 8 . 0 5
	              - 7 0
	              1 0 5
	            -1 0 5
	                0