Multiplying by 10, 100 and 1000

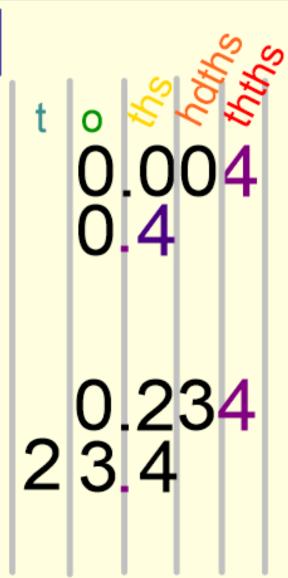| h	t	o	ths	hdths	thths
		0.00			4
		0.4			
		0.23			4
	2	3.4			

0.004x100

0.234x100

Step 1: Place your two decimals

Step 2: Move each number in turn to the left with the correct number of spaces.

Step 3: Remove unnecessary zeros, or add place holders if needed.

To the left...
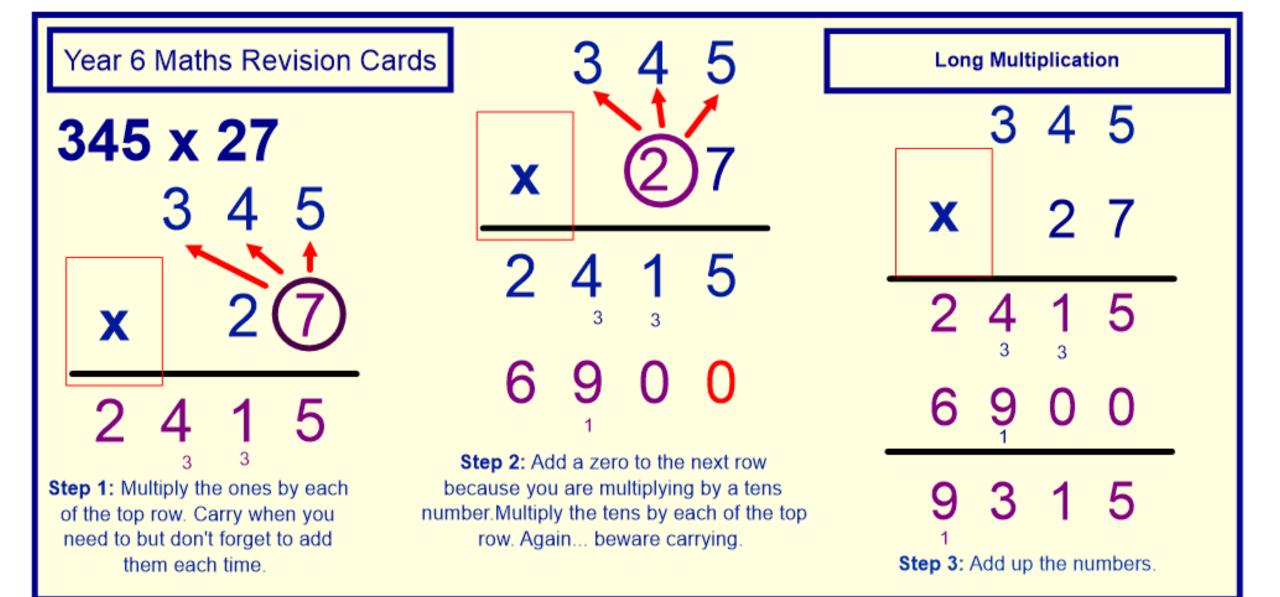
x10 = 1 space

x100 = 2 spaces

x1000 = 3 spaces

Dividing by 10, 100 and 1000

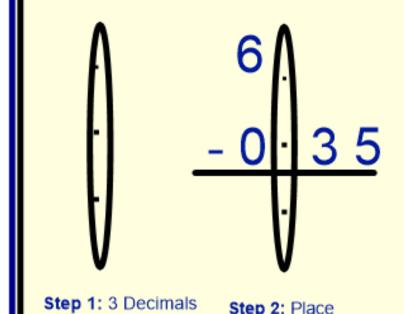| h	t	o	ths	hdths	thths
		0.	4		
		0.	0	0	4

$0.4 \div 100$

Step 1: Place your two decimals

Step 2: Move each number in turn to the left with the correct number of spaces.

Step 3: Remove unnecessary zeros, or add place holders if needed.

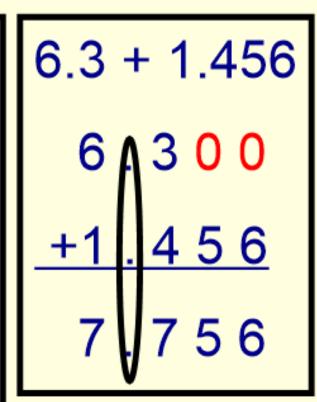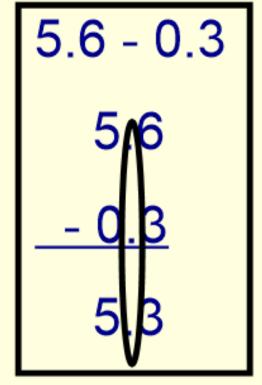**To the right...**

$\div 10 = 1$ space

$\div 100 = 2$ spaces

$\div 1000 = 3$ spaces

$23.4 \div 100$

h	t	o	ths	hdths	thths
	2	3.	4		
		0.	2	3	4

Long Multiplication

345 x 27

3 4 5
x   2 ⑦
———————
2 4 1 5
  3   3

Step 1: Multiply the ones by each of the top row. Carry when you need to but don't forget to add them each time.

3 4 5
x   ② 7
———————
2 4 1 5
    3   3
6 9 0 0
      1

Step 2: Add a zero to the next row because you are multiplying by a tens number. Multiply the tens by each of the top row. Again... beware carrying.

3 4 5
x   2 7
———————
2 4 1 5
    3   3
6 9 0 0
      1
———————
9 3 1 5
1

Step 3: Add up the numbers.

6
- 0 . 3 5

Step 1: 3 Decimals and a sausage. One is for your answer.

Step 2: Place numbers on.

6 - 0.35

$5\overset{9}{\cancel{6}}.\overset{}{\cancel{0}}0$

- 0 . 3 5

5 . 6 5

Step 3: Add place holders and calculate

6.3 + 1.456

6 . 3 0 0
+ 1 . 4 5 6

7 . 7 5 6

5.6 - 0.3

5 . 6

- 0 . 3

5 . 3

$$\frac{3}{4} \times \frac{1}{6} = \frac{3}{24}$$

Two Fractions

Example : Simply multiply top number and bottom numbers

Mixed Number and Fraction

$$2\frac{3}{4} \times \frac{1}{6}$$

Step 1: Convert mixed number into improper

Step 2: Multiply top and bottom numbers.

$$\frac{11}{4} \times \frac{1}{6} = \frac{11}{24}$$
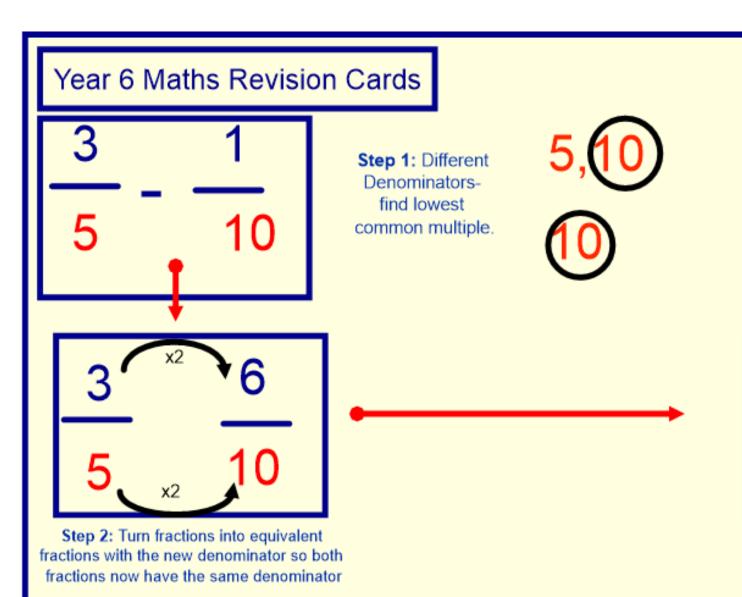
Whole Number and Fraction

$$2 \times \frac{5}{6}$$

Step 1: Convert mixed number into improper

$$\frac{2}{1} \times \frac{5}{6} = \frac{10}{6}$$

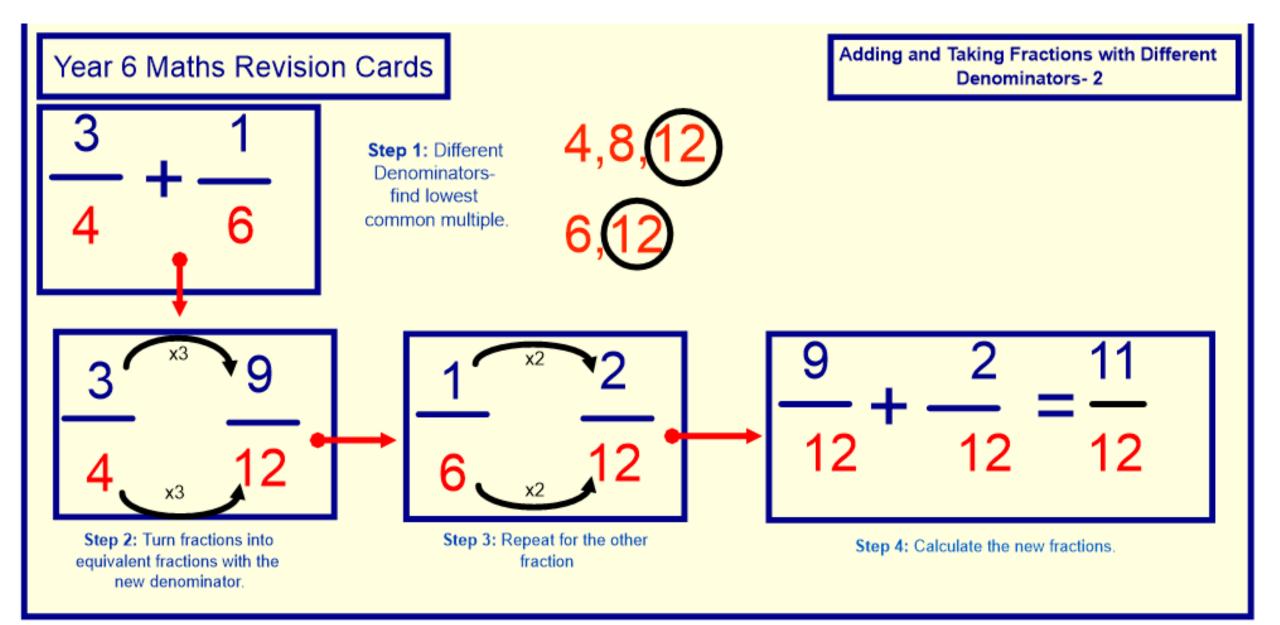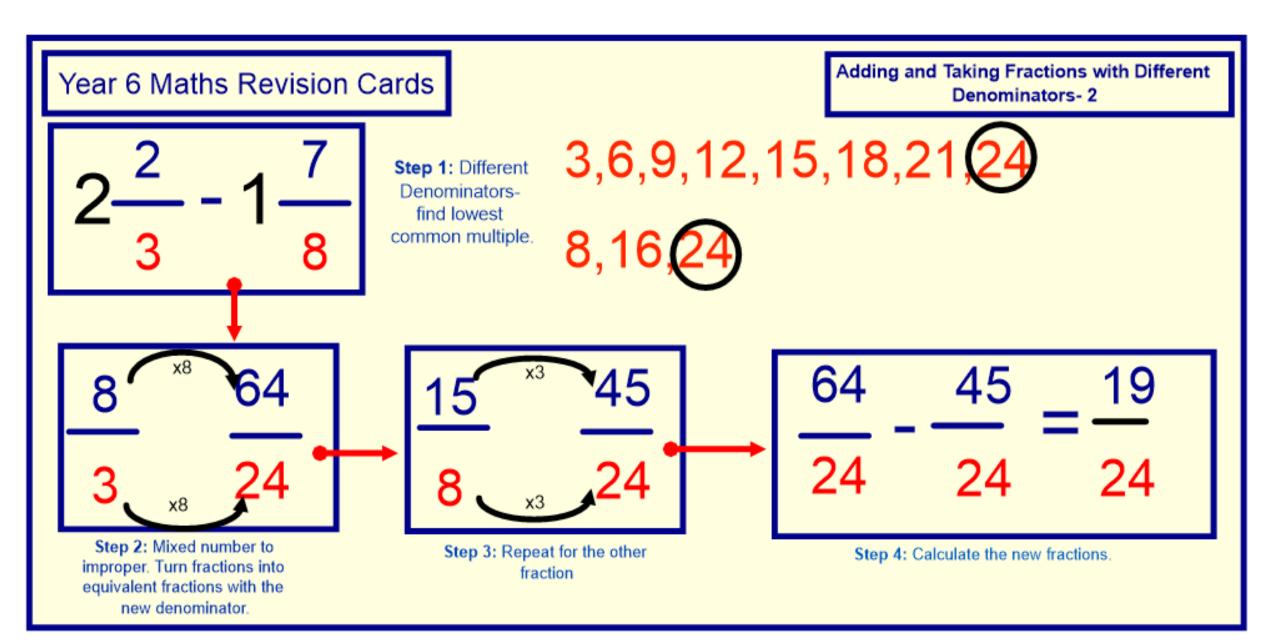**Step 2:** Multiply top and bottom numbers.

Step 3: Turn improper answer back to mixed number

$$\frac{10}{6} = 1\frac{4}{10}$$

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

Step 1: Different Denominators- find lowest common multiple.

5, (10)

(10)

$$\frac{3}{5} \xrightarrow{x2} \frac{6}{10}$$

x2

Step 2: Turn fractions into equivalent fractions with the new denominator so both fractions now have the same denominator

$$\frac{6}{10} - \frac{1}{10} = \frac{5}{10}$$

Step 3: Calculate with the new fractions.

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

Step 1: Different Denominators- find lowest common multiple.

4, 8, 12

6, 12

$$\frac{3}{4} \xrightarrow{\times 3}{\times 3} \frac{9}{12}$$

Step 2: Turn fractions into equivalent fractions with the new denominator.

$$\frac{1}{6} \xrightarrow{\times 2}{\times 2} \frac{2}{12}$$

Step 3: Repeat for the other fraction

$$\frac{9}{12} + \frac{2}{12} = \frac{11}{12}$$

Step 4: Calculate the new fractions.

$$2\frac{2}{3} - 1\frac{7}{8}$$

Step 1: Different Denominators- find lowest common multiple.

3,6,9,12,15,18,21,24

8,16,24

$$\frac{8}{3} \xrightarrow{x8} \frac{64}{24}$$

Step 2: Mixed number to improper. Turn fractions into equivalent fractions with the new denominator.

$$\frac{15}{8} \xrightarrow{x3} \frac{45}{24}$$

Step 3: Repeat for the other fraction

$$\frac{64}{24} - \frac{45}{24} = \frac{19}{24}$$

Step 4: Calculate the new fractions.

$$2\frac{2}{3} + 1\frac{7}{8}$$

Step 1: Different Denominators- find lowest common multiple.

3,6,9,12,15,18,21,24

8,16,24

Step 4: Calculate the new fractions.

$$\frac{64}{24} + \frac{45}{24} = \frac{109}{24}$$

$$\frac{8}{3} \xrightarrow{x8} \frac{64}{24}$$
(x8)

Step 2: Mixed number to improper. Turn fractions into equivalent fractions with the new denominator.

$$\frac{15}{8} \xrightarrow{x3} \frac{45}{24}$$
(x3)

Step 3: Repeat for the other fraction

Step 5: Improper to mixed number

$$\frac{109}{24} = 4\frac{13}{24}$$

10%- Divide by 10 (One space to the right)

5%- Half of what 10%

20%- Multiply 10% by 2

25%- 20%+5%

30%- Multiply 10% by 3

35%- 30%+5%

40%- Multiply 10% by 4

45%- 40%+5%

50%- Multiply 10% by 5 (Or Half)

55%- 50%+5%

60%- Multiply 10% by 6

65%- 60%+5%

70%- Multiply 10% by 7

75%- 70%+5%

80%- Multiply 10% by 8

85%- 80%+5%

90%- Multiply 10% by 9

95%- 90%+5%

35% of 330

Step 1: Find 10%

10%- Divide by 10

(One space to the right)

330.

33.

Step 2: Find 5%

5%- Half 10%

33

15 + 1.5 = **16.5**

Step 3: Find 30%

Multiply 10% by 3

$$\begin{array}{r} 3\ 3 \\ \times\ \ \ 3 \\ \hline 9\ 9 \end{array}$$

Step 4: Find 35%

Add 30% and 5%

$$\begin{array}{r} 3\ 3.0 \\ +\ 1\ 6.5 \\ \hline 4\ 9.5 \end{array}$$

1%- Divide by 100 (Two spaces to the right)

2%- 1% x 2

3%- 1% x 3

4%- 1% x 4

5%-1% x 5

6%-1% x 6

7%-1% x 7

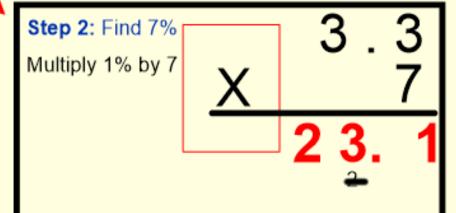8%-1% x 8

9%-1% x 9

7% of 330

Step 1: Find 1%

1%- Divide by 100

(Two spaces to the right)

330.

3.3

Step 2: Find 7%

Multiply 1% by 7

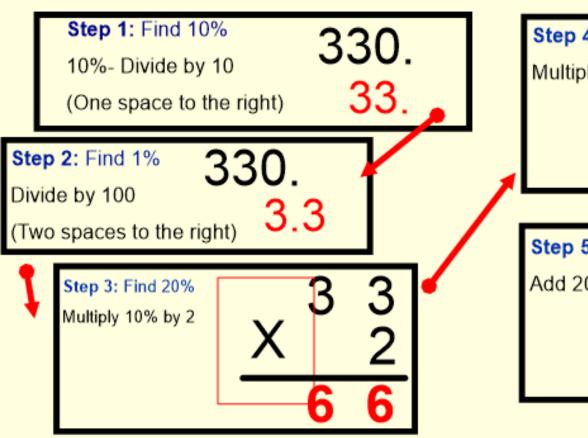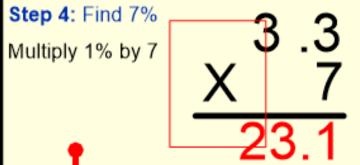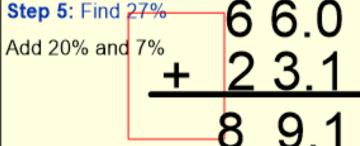$$\begin{array}{r} 3.3 \\ \times\ 7 \\ \hline 23.1 \end{array}$$

10%- Divide by 10 (One space to the right)

1%- Divide by 100 (Two spaces to the right)

27% of 330

Step 1: Find 10%
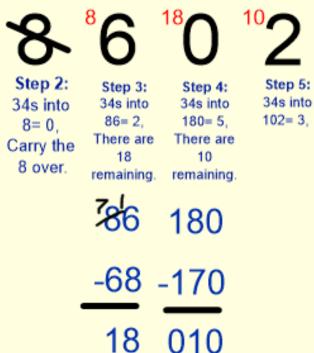
10%- Divide by 10

(One space to the right)

330.
33.

Step 2: Find 1%

Divide by 100

(Two spaces to the right)

330.
3.3

Step 3: Find 20%

Multiply 10% by 2

```
  3 3
X   2
-----
  6 6
```

Step 4: Find 7%

Multiply 1% by 7

```
  3 .3
X    7
------
 23.1
```

Step 5: Find 27%

Add 20% and 7%

```
  6 6.0
+ 2 3.1
-------
  8 9.1
```

Long Division

$$0 \quad 2 \quad 5 \quad 3 \quad = 253$$

Never any remainders

$$34 \overline{) \;\; 8 \;\;^{8}6 \;\;^{18}0 \;\;^{10}2}$$

Step 2:
34s into 8= 0, Carry the 8 over.

Step 3:
34s into 86= 2, There are 18 remaining.

Step 4:
34s into 180= 5, There are 10 remaining.

Step 5:
34s into 102= 3,

86   180

-68   -170
_____   _____
18   010

Use column method to see what is remaining.

Step 1: Count 6 lots of 34, partition to make easy. Count in steps of the tens and the ones. So 30s and 4s.

30 + 4 =   34

60 + 8 =   68

90 + 12 =   102

120 + 16 =   136

150 + 20 =   170

180 + 24 =   204

It isn't usually anymore than 6.

Example 1

0.3 x 4

3x4=12

=1.2

Underline the one number after decimal.

Multiply the numbers you can see 3x4.

Ensure one decimal place in your answer.

Example 2

0.07 x 4

7x4=28

=0.28

Underline two numbers after decimal

Multiply the numbers you can see 7x4.

Ensure two decimal places in your answer.

Example 3

0.6 x 40

6x40=240

=24.0

Underline the one number after decimal.

6x4=24, so 6x40=240.

Ensure one decimal place in your answer.

24.0 or just 24.

Example 4

0.5 x 0.4

5x4=20

0.20

Underline the two numbers after decimal.

Multiply the numbers you can see 5x4.

Ensure two decimal place in your answer. Place holder before zero.

Example 5
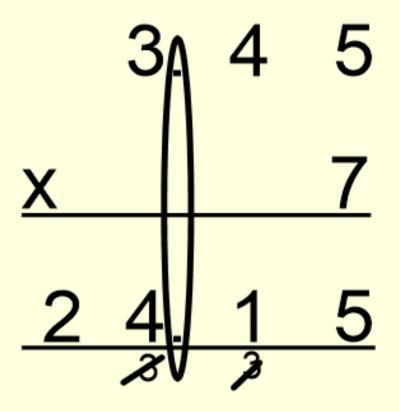
0.15 x 0.3

15x3=45

0.045

Underline the three numbers after decimal.

Multiply the numbers you can see 15x3.

Ensure three decimal places in your answer. Place holder before zero and a zero before the 45.

3.45 x 7

$$3.45$$
$$\times \quad 7$$
$$\overline{24.15}$$

Step 1:

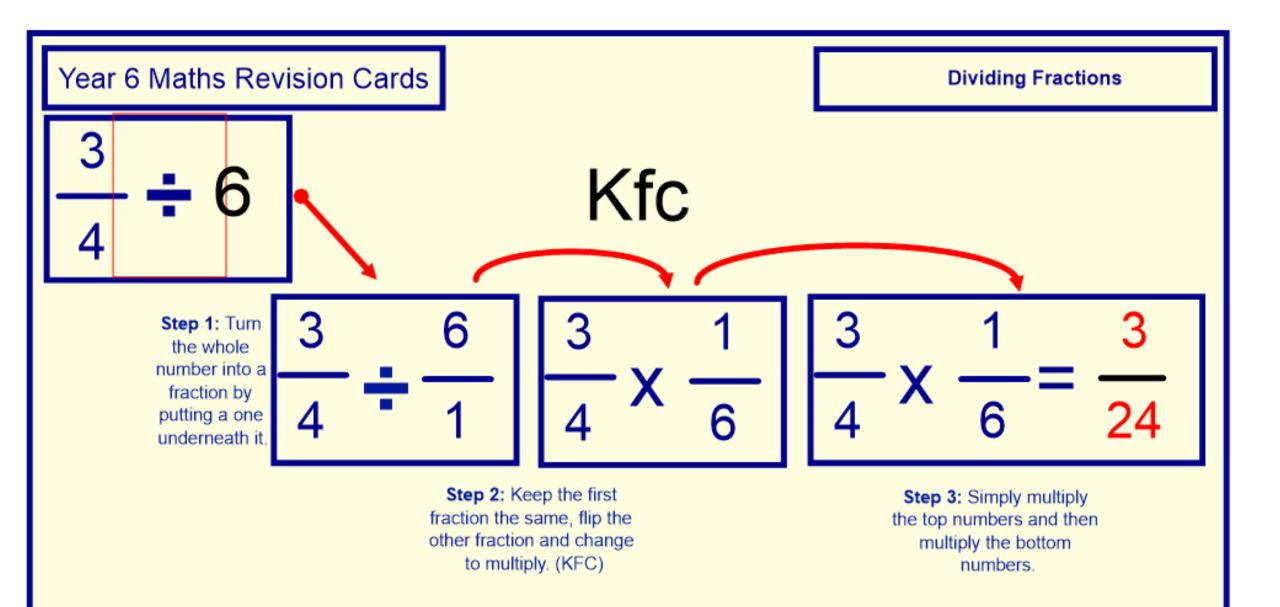Place numbers into a column method. No placeholders needed.

Step 2:

Ensure decimal is ready in your answer. Sausage!

Step 3:

Multiply each number by the whole number.

Don't forget the decimal in the answer.

$$\frac{3}{4} \div 6$$

Kfc

Step 1: Turn the whole number into a fraction by putting a one underneath it.

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

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

$$\frac{3}{4} \times \frac{1}{6} = \frac{3}{24}$$

Step 2: Keep the first fraction the same, flip the other fraction and change to multiply. (KFC)

Step 3: Simply multiply the top numbers and then multiply the bottom numbers.

$5^2 = 5 \times 5$

$= 25$

Example 1: 5 squared, means 5 times by itself.

$5^3 = 5 \times 5 \times 5$

$5 \times 5 = 25$

25×5

Example 2:

Step 1:
Multiply the first two numbers.

Step 2:
Multiply the answer by the final numbers.

```
  2 5
x   5
1 2 5
```

$= 125$

Year 6 Maths Revision Cards

Step 1: When you have mixed operations. Write BIDMAS down the side. Tick off and complete in order.

Brackets

Indices (e.g. squared/cubed)

Division

Multiplication

Addition

Subtraction

B $3 \times 7 + 5^2 - 2$

I $3 \times 7 + 25 - 2$

D

M $21 + 25 - 2$

A $46 - 2$

S $= 44$

Example 1

No brackets, so deal with the indices first. 5 squared.

No division, so next do the multiplication.

Next the addition, and finally the subtraction.

B $3 \times (7 + 5) - 2$

I $3 \times 12 - 2$

D

M $36 - 2$

A

S $= 34$

Example 2

Brackets first. No indices.

No division, so do the multiplication.

Finally, subtract.