

# Help At Home Guidance: How to Crack the 30 in 30!

*This guidance is designed to help your child improve their maths at home.*

The weekly '30 in 30' tests are designed to keep your child constantly on top of the essential arithmetic skills which are required in maths. They also prepare your child for the first of 3 maths Year 6 SATs papers which asks children to answer approximately 30 questions in 30 minutes.

## Place Value

### Multiplying and Dividing by 10, 100 and 1000

10 000	1000	100	10	1	●	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
					●			

#### Multiplying

X 10      digits move LEFT 1 space  
X 100     digits move LEFT 2 spaces  
X 1000    digits move LEFT 3 spaces



#### Dividing

÷ 10      digits move RIGHT 1 space  
÷ 100     digits move RIGHT 2 spaces  
÷ 1000    digits move RIGHT 3 spaces



#### *Example questions*

$$0.3 \times 10$$

$$0.9 \div 10$$

$$3.283 \times 100$$

$$0.923 \div 100$$

$$13.4 \times 1000$$

$$313.3 \div 1000$$

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## Written Calculations

### Column Addition

$$\begin{array}{r} 367 \\ + 85 \\ \hline 452 \\ \hline 11 \end{array}$$

## Decomposition Subtraction

$$\begin{array}{r} 2 \overset{3}{\cancel{4}} \overset{1}{5} 6 \\ 1385 \\ \hline 1071 \end{array}$$

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## Squared Numbers

$$2 \times 2 = 2^2$$
$$= 4$$

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## Cubed Numbers

$$2 \times 2 \times 2 = 2^3$$
$$= 8$$

## Bus Stop Division

$$964 \div 7 = 137 \text{ r } 5$$

$$\begin{array}{r} 137 \text{ r } 5 \\ 7 \overline{) 964} \end{array}$$

How many 7's in 9? 1 (put at top)  
remainder 2 (put before 6)

How many 7's in 26? etc...

**Don't forget you can also use the Bus Stop method to find:**

**Decimals...** (the original remainder, 2, forms the '20' when you add a 0 at the bottom)

$$142 \div 4 = 35.5$$

$$\begin{array}{r} 035.5 \\ 4 \overline{) 142.0} \end{array}$$

**Fractions...** (the original remainder, 2, is put on top of the divisor to form a fraction – which can be simplified)

$$\begin{array}{r} 035 \\ 4 \overline{) 142} \\ \hline \frac{2}{4} \end{array}$$

## Chunking Division

73 ÷ 5 How many 5s make 73?

$$\begin{array}{r} 73 \\ - 50 \quad (10 \times 5) \\ \hline 23 \\ - 20 \quad (4 \times 5) \\ \hline 3 \end{array}$$

How many 5s have been subtracted?  
14 sets of 5, with 3 left over.

$$73 \div 5 = 14 \text{ r}3$$

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## Short Multiplication

X 1 digit

$$\begin{array}{r} 237 \\ \times 4 \\ \hline 948 \\ 1 \quad 2 \end{array}$$

X 2 digit (Don't forget to 'lay the egg!')

$$\begin{array}{r} 68 \\ \times 26 \\ \hline 408 \\ 1360 \\ \hline 1768 \end{array}$$

It's not 2 x 68, it's actually 20 x 68 – need to add a zero

# Adding Fractions

## Adding Fractions

### Adding Fractions with Like Denominators

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

Add the numerators.  
Denominator is unchanged.

$$\frac{1+3}{7}$$
$$\frac{4}{7}$$

### Adding Fractions with Unlike Denominators

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

Rewrite with common denominator

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

Add the numerators

$$\frac{3}{24} + \frac{16}{24}$$
$$\frac{19}{24}$$

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# Subtracting Fractions

$$\frac{11}{15} - \frac{3}{5} = ?$$

$$\frac{11}{15} - \frac{3 \times 3}{5 \times 3}$$

$$\frac{11}{15} - \frac{9}{15} = \frac{11-9}{15} = \frac{2}{15}$$

Same

The bottom number (denominator) of each fraction must be the same before you can do the calculation, so...

**What you do to the top you do to the bottom**

**What you do to the bottom you do to the top**

## Multiplying Fractions

Multiply the numerators

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$$

Multiply the denominators

$$\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$$

Reduce the fraction if necessary

$$\frac{6}{20} = \frac{3}{10}$$

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## Multiplying whole numbers by fractions

$$\frac{3}{4} \times \frac{5}{1} = \frac{15}{4} = 3 \frac{3}{4}$$

Writing the whole number as a fraction helps

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## Dividing Fractions

$$\frac{1}{2} \div \frac{1}{6}$$

leave me change turn  
me me me  
over

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

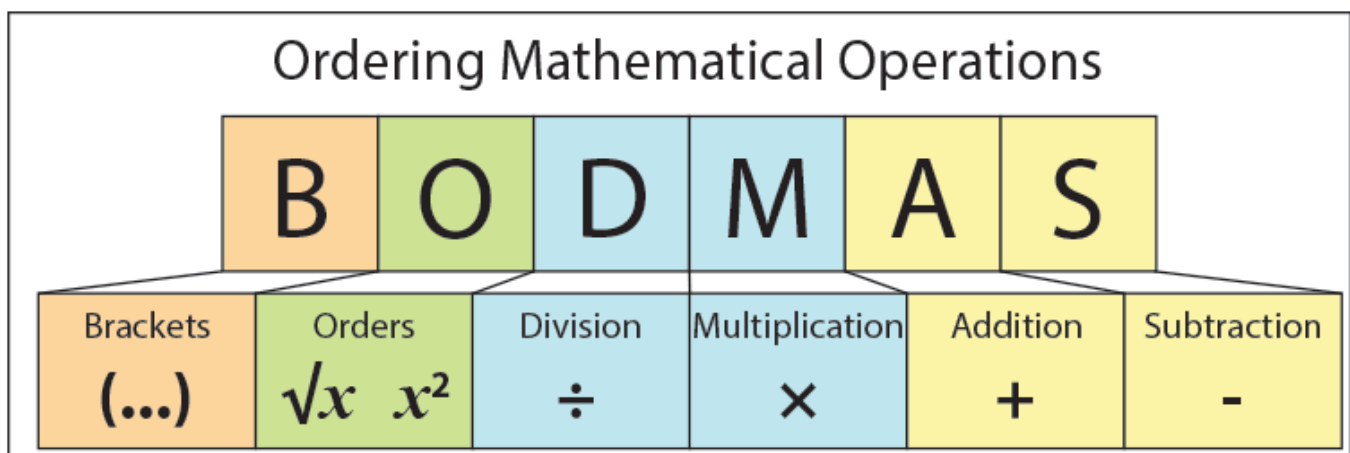
You then work it out as if you were multiplying the fractions...

## Ordering Decimals

- Write all numbers out again in columns
  - Make sure the decimal points are lined up
  - Fill in gaps with a place holder (0)
  - Compare and order – it is now far easier to do
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## BODMAS

This is in what order we do a calculation...



$$3 + (2 \times 4) = 3 + 8 = 11$$

$$4 + 6 \times 5 = 4 + 30 = 34$$

**And finally... don't forget your TIMES TABLES!**

They really do underpin **everything** in mathematics.

“A good mathematician can work them out...

a **great** mathematician knows them!”