



Examples of formal written methods for addition, subtraction, multiplication and division

Column Addition and Subtraction

789 + 642 becomes

$$\begin{array}{r} 789 \\ + 642 \\ \hline 1431 \\ \hline 1 \quad 1 \end{array}$$

Answer: 1431

874 - 523 becomes

$$\begin{array}{r} 874 \\ - 523 \\ \hline 351 \end{array}$$

Answer: 351

932 - 457 becomes

$$\begin{array}{r} 8 \quad 12 \quad 1 \\ 932 \\ - 457 \\ \hline 475 \end{array}$$

Answer: 475

Short Multiplication

24 × 6 becomes

$$\begin{array}{r} 24 \\ \times 6 \\ \hline 144 \\ \hline 2 \end{array}$$

Answer: 144

342 × 7 becomes

$$\begin{array}{r} 342 \\ \times 7 \\ \hline 2394 \\ \hline 2 \quad 1 \end{array}$$

Answer: 2394

2741 × 6 becomes

$$\begin{array}{r} 2741 \\ \times 6 \\ \hline 16446 \\ \hline 4 \quad 2 \end{array}$$

Answer: 16 446

Short Division

98 ÷ 7 becomes

$$\begin{array}{r} 14 \\ 7 \overline{) 98} \\ \underline{7} \\ 28 \\ \underline{28} \\ 0 \end{array}$$

Answer: 14

432 ÷ 5 becomes

$$\begin{array}{r} 86 \text{ r}2 \\ 5 \overline{) 432} \\ \underline{40} \\ 32 \\ \underline{30} \\ 2 \end{array}$$

Answer: 86 remainder 2

496 ÷ 11 becomes

$$\begin{array}{r} 45 \text{ r}1 \\ 11 \overline{) 496} \\ \underline{44} \\ 56 \\ \underline{55} \\ 1 \end{array}$$

Answer: $45 \frac{1}{11}$

Long Multiplication

24 × 16 becomes

$$\begin{array}{r} ^2 \\ 24 \\ \times 16 \\ \hline 240 \\ 144 \\ \hline 384 \end{array}$$

Answer: 384

124 × 26 becomes

$$\begin{array}{r} ^1 ^2 \\ 124 \\ \times 26 \\ \hline 2480 \\ 744 \\ \hline 3224 \\ 1 \end{array}$$

Answer: 3224

124 × 26 becomes

$$\begin{array}{r} ^1 ^2 \\ 124 \\ \times 26 \\ \hline 744 \\ 2480 \\ \hline 3224 \\ 1 \end{array}$$

Answer: 3224

Example:

To calculate 158×67 :

First, multiply by 7 (units):

$$\begin{array}{r} 158 \\ \times 67 \\ \hline \end{array}$$

1106

Then add a zero on the right-hand side of the next row. This is because we want to multiply by 60 (6 tens), which is the same as multiplying by 10 and by 6.

Now multiply by 6:

$$\begin{array}{r} 158 \\ \times 67 \\ \hline \end{array}$$

1106

9480

Now add your two rows together, and write your answer.

$$\begin{array}{r} 158 \\ \times 67 \\ \hline \end{array}$$

1106

9480

10586

So the answer is **10586**.

Long Division

$432 \div 15$ becomes $\begin{array}{r} 28 \text{ r } 12 \\ 15 \overline{) 432} \\ \underline{300} \\ 132 \\ \underline{120} \\ 12 \end{array}$ <p>Answer: 28 remainder 12</p>	$432 \div 15$ becomes $\begin{array}{r} 28 \\ 15 \overline{) 432} \\ \underline{300} \quad 15 \times 20 \\ 132 \\ \underline{120} \quad 15 \times 8 \\ 12 \end{array}$ $\frac{\cancel{12}}{\cancel{15}} = \frac{4}{5}$ <p>Answer: $28 \frac{4}{5}$</p>	$432 \div 15$ becomes $\begin{array}{r} 28 \cdot 8 \\ 15 \overline{) 432 \cdot 0} \\ \underline{30} \quad \downarrow \\ 132 \\ \underline{120} \quad \downarrow \\ 120 \\ \underline{120} \\ 0 \end{array}$ <p>Answer: 28.8</p>
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Example:

This is a similar method to 'short' division, but, rather than writing the remainder at the top each time, we work it out underneath.

To calculate 748 divided by 51,

First, set the sum out as shown:

$$51 \overline{) 748}$$

We work out 74 divided by 51, and write the answer (1) above the 4.

$1 \times 51 = 51$, so we write this underneath 74.

Subtract 51 from 74 to get the remainder (23).

$$\begin{array}{r} 1 \\ 51 \overline{) 748} \\ \underline{-51} \\ 23 \end{array}$$

We now bring down the next digit (8) and write it on the end of the 23.

$$\begin{array}{r} 1 \\ 51 \overline{) 748} \\ \underline{-51} \\ 238 \end{array}$$

We now work out 238 divided by 51, and write the answer (4) above the 8. You use estimation skills here: 51 is roughly 50 and $4 \times 50 = 200$. You can work out $51 \times 4 = 204$ separately.

We write 204 underneath the 238 and subtract to find the remainder. There are no more digits to bring down, so we have our answer:

$$\begin{array}{r} 14 \\ 51 \overline{) 748} \\ \underline{-51} \\ 238 \\ \underline{-204} \\ 34 \end{array}$$

So the answer is **14 remainder 34**.

Websites

We recommend the following Maths websites. Click on the links to access them.

www.mathletics.co.uk

www.bbc.co.uk/bitesize

www.mathsisfun.com

<http://www.woodlands-junior.kent.sch.uk/maths/index.html>

<http://nrich.maths.org/public/monthindex.php?year=2004&month=01>

<http://www.channel4learning.com/sites/puzzlemaths>

<http://www.mathszone.co.uk>

www.crickweb.co.uk

http://www.activityvillage.co.uk/sudoku_for_kids.htm

<http://www.maths-games.org/times-tables-games.html>