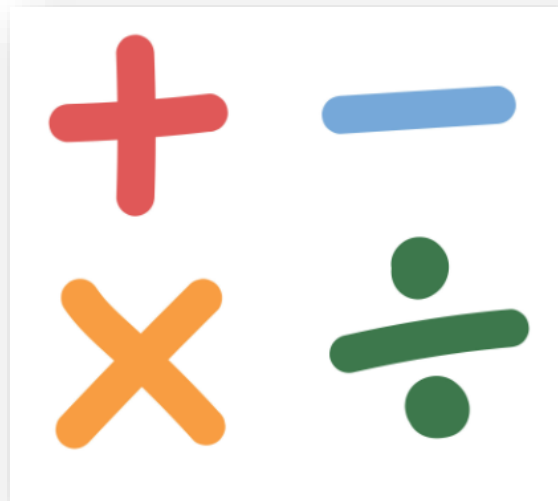




Weston Favell CE Primary School

Calculation Guide

Year 5



NORTHAMPTON
PRIMARY ACADEMY TRUST

This calculation guide will demonstrate the written calculation strategies that are covered for addition, subtraction, multiplication and division.

Practising these will help in preparation for Year 6 and beyond!

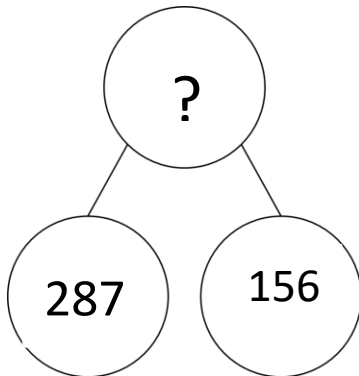
If you have any questions or need any further support, please ask your class teacher and they will be happy to help you.

Addition

$$8 + 9 = 17$$

addend + addend = sum

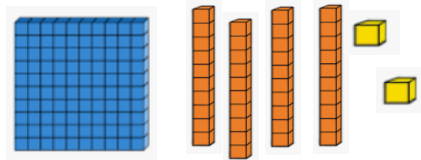
Example question: $287 + 156$



A part/part whole
model

| | |
|-----|-----|
| ? | |
| 287 | 156 |

A bar model



Exploring using Base 10 Equipment

Column
Method

$$\begin{array}{r} 287 \\ + 156 \\ \hline 443 \\ \hline 11 \end{array}$$

Subtraction

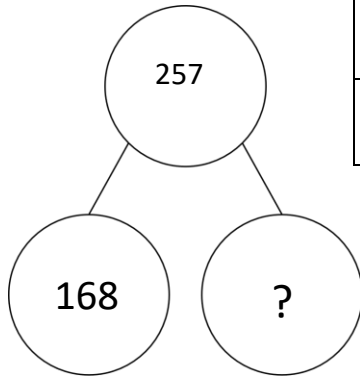
(Finding the Difference)

$$17 - 9 = 8$$

minuend - subtrahend = difference

Example questions:

257 – 168 (exchange required)



A part/part whole model

| | |
|-----|---|
| 257 | |
| 168 | ? |

| | |
|-----|---|
| 257 | |
| 168 | ? |

Bar models

Column Method
with Exchange

$$\begin{array}{r}
 \overset{1}{\cancel{2}} \overset{14}{5} 17 \\
 - 168 \\
 \hline
 089
 \end{array}$$

In this example, we have had to make two exchanges to partition the numbers so we can subtract with ease.

For further information on how we exchange, please refer to the Year 4 booklet.



Multiplication

$$12 \times 7 = 84$$

factor \times factor = product

Example question: $57 \times 17 = 969$

The Grid Method

| x | 50 | 7 |
|----|------------------|----------------|
| 10 | (50 x 10) 500 | (7 x 10) 70 |
| 7 | (50 x 7) 350 | (7 x 7) 49 |

= 570

= 399

$$\begin{array}{r} 570 \\ + 399 \\ \hline 969 \\ \hline 1 \end{array}$$

Long Multiplication

$$\begin{array}{r} 57 \\ \times 17 \\ \hline 399 \quad (57 \times 7) \\ 570 \quad (57 \times 10) \\ \hline 969 \\ \hline 1 \end{array}$$

Division

$$12 \div 4 = 3$$

dividend \div divisor = quotient

Example questions:

$$324 \div 6 = 54 \text{ (1-digit divisor)}$$

$$334 \div 13 \text{ (2-digit divisor)}$$

$$235 \div 13 = 18.076 \text{ (Quotient up to 3 decimal places)}$$

Short Division

$$\begin{array}{r} 054 \\ 6 \overline{) 324} \\ \underline{324} \\ 0 \end{array}$$

Annotations: 3, 2

$$\begin{array}{r} 018 \\ 13 \overline{) 234} \\ \underline{234} \\ 0 \end{array}$$

Annotations: 2, 10

Annotations to support:

13
26
 $10 \times 13 = 130$
 $9 \times 13 = 117$
 $8 \times 13 = 104$

$$\begin{array}{r} 018.076 \\ 13 \overline{) 235.000} \\ \underline{235} \\ 000 \end{array}$$

Annotations: 2, 10, 1, 10, 9

Annotations to support:

$7 \times 13 = 91$
 $6 \times 13 = 78$



Times Tables

In Year Five, children need to retain and apply all of their time tables facts up to 12×12 alongside their corresponding division facts e.g. $3 \times 2 = 6$ so $6 \div 2 = 3$.

Children need to learn the times tables highlighted in the table below in order:

- $0 \times 2 = 0$
- $1 \times 2 = 2$
- $2 \times 2 = 4$ etc.

Then they need to be able to answer in any order e.g. $4 \times 2 = 8$, $12 \times 2 = 24$, $2 \times 2 = 4$

Focus on the commutativity of the times table when practising at home. If I know $3 \times 5 = 15$, I also know 5×3 is 15! This is represented in the table below:

| x | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|------|------|------|------|------|------|------|------------------------|------|-------|-------|-------|
| 1 | 1x1 | | | | | | | | | | | |
| 2 | 2x1 | 2x2 | | | | | | No new facts in Year 5 | | | | |
| 3 | 3x1 | 3x2 | 3x3 | | | | | | | | | |
| 4 | 4x1 | 4x2 | 4x3 | 4x4 | | | | | | | | |
| 5 | 5x1 | 5x2 | 5x3 | 5x4 | 5x5 | | | | | | | |
| 6 | 6x1 | 6x2 | 6x3 | 6x4 | 6x5 | 6x6 | | | | | | |
| 7 | 7x1 | 7x2 | 7x3 | 7x4 | 7x5 | 7x6 | 7x7 | | | | | |
| 8 | 8x1 | 8x2 | 8x3 | 8x4 | 8x5 | 8x6 | 8x7 | 8x8 | | | | |
| 9 | 9x1 | 9x2 | 9x3 | 9x4 | 9x5 | 9x6 | 9x7 | 9x8 | 9x9 | | | |
| 10 | 10x1 | 10x2 | 10x3 | 10x4 | 10x5 | 10x6 | 10x7 | 10x8 | 10x9 | 10x10 | | |
| 11 | 11x1 | 11x2 | 11x3 | 11x4 | 11x5 | 11x6 | 11x7 | 11x8 | 11x9 | 11x10 | 11x11 | |
| 12 | 12x1 | 12x2 | 12x3 | 12x4 | 12x5 | 12x6 | 12x7 | 12x8 | 12x9 | 12x10 | 12x11 | 12x12 |