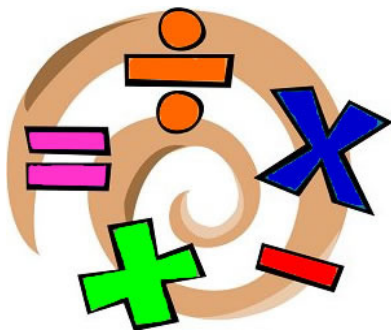




Totley All Saints
Growing & learning together!

Y3 WRITTEN METHODS OF CALCULATION



ADDITION

STAGE 2: PARTITIONING

$$\begin{array}{r}
 47 \\
 +76 \\
 \hline
 \end{array}
 =
 \begin{array}{r}
 40 + 7 \\
 70 + 6 \\
 \hline
 110 + 13 = 123
 \end{array}$$

- **Write the numbers underneath each other (line up tens & units).**
- **Partition the tens & units.**
- **Add the tens.**
- **Add the units.**
- **Combine your totals.**

$$47 + 76 = 123$$



ADDITION

STAGE 3: EXPANDED COLUMNS

$$\begin{array}{r}
 47 \\
 +76 \\
 \hline
 13 \\
 110 \\
 \hline
 123
 \end{array}$$

$$47 + 76 = 123$$

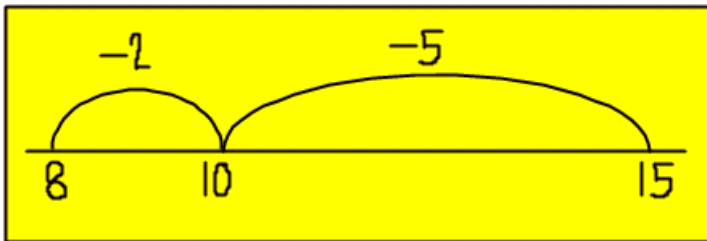
- **Write the numbers underneath each other (line up tens & units).**
- **Add the units.**
- **Add the tens.**
- **Combine your units & tens.**
- **Line up any hundreds.**



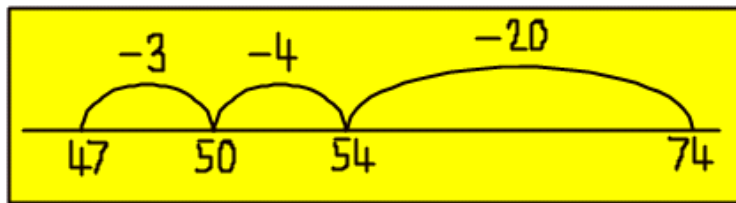
SUBTRACTION

STAGE 1: NUMBER LINE

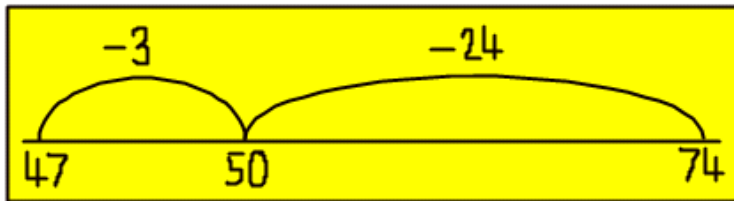
BRIDGING



$$15 - 7 = 8$$



or



$$74 - 27 = 47$$

- **Draw a number line back from 15.**
- **Partition 7, to subtract the 5 units in 15 & then the rest (2).**
- **15 minus 7 equals 8.**

- **Draw a number line back from 74.**
- **Partition 27 (into 20 & 3 & 4 or, into 24 & 3, to bridge through 50 as you subtract).**
- **Subtract each hop.**
- **74 minus 27 is 47.**



SUBTRACTION

STAGE 2: EXPANDED COLUMNS

$$\begin{array}{r} 70 + 4 \\ - 20 + 7 \\ \hline \end{array} \quad \begin{array}{r} 60 \quad 14 \\ \cancel{70} + \cancel{4} \\ - 20 + 7 \\ \hline 40 + 7 \end{array}$$

$$74 - 27 = 47$$

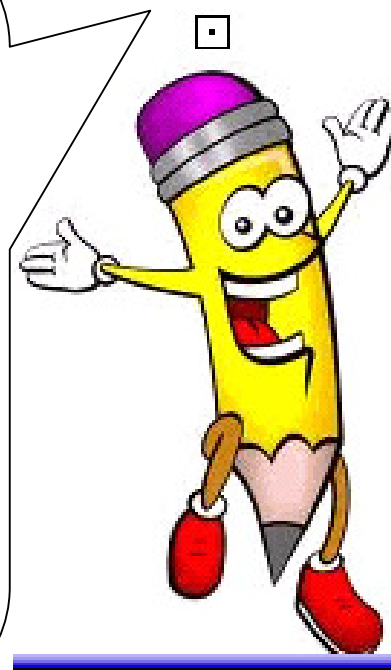
$$741 - 367 = 374$$

$$563 - 278 = 285$$

$$\begin{array}{r} 700 + 40 + 1 \\ - 300 + 60 + 7 \\ \hline \end{array} \quad \begin{array}{r} 600 \quad 130 \quad 11 \\ \cancel{700} + \cancel{40} + \cancel{1} \\ - 300 + 60 + 7 \\ \hline 300 + 70 + 4 \end{array}$$

$$\begin{array}{r} 400 \quad 150 \quad 13 \\ \cancel{500} \quad \cancel{50} \quad \cancel{13} \\ + 500 + 60 + 3 \\ - 200 + 70 + 8 \\ \hline 200 + 80 + 5 \end{array}$$

- **Partition into HTU.**
- **Line up HTU underneath each other in columns.**
- **Adjust your units or tens or if needed.**
- **Subtract your units, then tens & hundreds.**
- **Combine your HTU totals.**



MULTIPLICATION

STAGE 2: MENTAL PARTITIONING

$$\begin{array}{r}
 43 \\
 40 + 3 \\
 \downarrow \quad \downarrow \\
 240 + 18 = 258
 \end{array}
 \times 6$$

$$43 \times 6 = 258$$

- **Partition 43 into its tens & units.**
- **Multiply 40 by 6 & then multiply 3 by 6.**
- **Combine your totals.**
- **43 multiplied by 6 equals 258.**



MULTIPLICATION

STAGE 3: EXPANDED COLUMNS

$$38 \times 7 = 266$$

$$\begin{array}{r} 30+8 \\ \times 7 \\ \hline 56 \quad 8 \times 7 = 56 \\ 210 \quad 30 \times 7 = 210 \\ \hline 266 \end{array}$$

$$\begin{array}{r} 38 \\ \times 7 \\ \hline 56 \\ 210 \\ \hline 266 \end{array}$$

- **Partition 38 into tens & units.**
- **Line up the units & multiply them.**
- **Multiply the tens by 7.**
- **Combine your totals.**
- **Keep track of your steps at the side.**

- **Multiply the units by 7.**
- **Multiply the tens by 7.**
- **Combine your totals.**



DIVISION

STAGE 2: MENTAL PARTITIONING

$$\begin{array}{r}
 84 \\
 70 + 14 \div 7 \\
 \downarrow \quad \downarrow \\
 10 + 2 = 12
 \end{array}$$

$$84 \div 7 = 12$$

- **Partition 84 into ten multiples of 7 (70), & the rest (14).**
- **Divide 70 by 7 & then 14 by 7.**
- **Combine your totals.**
- **84 divided by 7 equals 12.**



Written Methods of Calculation for each year group:

ADDITION			
Y1	Y2	Y3	Y4 Y5 Y6
Stage 1 Number Line	Stage 2 Partitioning	Stage 3 Expanded Columns	Stage 4 Column Method

SUBTRACTION			
Y1	Y2	Y3	Y4 Y5 Y6
Stage 1 Number Line Counting back & Partitioning	Stage 1 Number Line Bridging	Stage 2 Expanded Columns	Stage 3 Column Method

MULTIPLICATION			
Y1	Y2	Y3	Y4 Y5 Y6
Stage 1 Number Line	Stage 2 Mental Partitioning	Stage 3 Expanded Columns	Stage 4 Short & Long Multiplication

DIVISION			
Y1 Y2	Y3	Y4 Y5 Y6	
Stage 1 Number Line	Stage 2 Mental Partitioning	Stage 3 Short Division	Stage 4 Long Division

Please note: some children may need work in the stage before or after their year group, as appropriate to their needs.