

## Addition Methods

### Expanded Column Addition

$$63 + 32 = 95$$

$$\begin{array}{r} 60 + 3 \\ + 30 + 2 \\ \hline 90 + 5 = 95 \end{array}$$

'Partition the numbers into tens and ones/units. Add the tens together and then add the ones/units together.

Then...

$$\begin{array}{r} 63 \\ + 32 \\ \hline 5 \quad (3 + 2) \\ \underline{90} \quad (60 + 30) \\ 95 \end{array}$$

Add the least significant digits (units) together first and then the tens in preparation for the formal written method.

### Compact column Addition

$$\begin{array}{r} 63 \\ + 32 \\ \hline 95 \end{array}$$

Use the language of place value to ensure understanding:

'Three add two equals five. Write five in the units column.

60 add 30 equals 90. Write 9 (90) in the tens column.

$$\begin{array}{r} 68 \\ + 24 \\ \hline 92 \\ 1 \end{array}$$

Use the language of place value to ensure understanding:

'Eight add four equals 12. Write two in the units column and 'carry' one (10) across into the tens column. 60 add 20 and the ten that we 'carried' equals 90. Write 9 (90) in the tens column. 92 is the answer.

## Subtraction Methods

### Counting up (informal subtraction method)

$$231 - 198 = 33$$



'The difference between 198 and 231 is 33.'

### Expanded column Subtraction

$$78 - 23 = 55$$

$$\begin{array}{r} 70 + 8 \\ - 20 + 3 \\ \hline 50 + 5 = 55 \end{array}$$

Partition numbers into tens and ones/units.

Subtract the ones, and then subtract the tens.

Recombine to give the answer.

NB In this example decomposition (exchange) is

not required.

### Compact Column Subtraction

$$73 - 27 = 46$$

$$\begin{array}{r} 6 \quad 13 \\ - \quad \cancel{7} \quad \cancel{3} \\ \hline - \quad 2 \quad 7 \\ \hline \underline{4 \quad 6} \end{array}$$

Use the language of place value to ensure understanding.

'We can't subtract seven from three, so we need to exchange a ten for ten ones to give us 60 + 13.'