

## Key Vocabulary

|                    |
|--------------------|
| Add                |
| Total              |
| Make               |
| Plus               |
| Sum                |
| More               |
| Altogether         |
| Difference         |
| Subtract           |
| Less               |
| Minus              |
| Take away          |
| Column addition    |
| Column subtraction |
| Estimate           |
| Inverse operation  |
| Number facts       |
| Place value        |
| Complex            |

## Addition

Place Value Grid:  $3274 + 5601 = 8875$

|    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|----|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
| Th |  |  |  |  |
|    |  |  |  |  |
| H  |  |  |  |  |
|    |  |  |  |  |
| T  |  |  |  |  |
|    |  |  |  |                                                                                   |
| O  |  |  |  |  |

### Column Method

Starting with the ones, add each column in turn. Regroup tens, hundreds, thousands, ten thousands and/or as required.

$$\begin{array}{r} 45864 \\ +23497 \\ \hline 69361 \\ 111 \end{array}$$

## Subtraction

Place Value Grid:  $35\,727 - 6313 = 29\,414$

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                     |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| TTh |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 2 ten thousands left                                                                                                                |
| Th  |     <br>    | 5 thousands – 6 thousands cannot be done. Exchange ten thousand for ten thousands becoming 15 thousands – 6 thousands = 9 thousands |
| H   |    <br>                                                                                                                                                                           | 7 hundreds – 3 hundreds = 4 hundreds                                                                                                |
| T   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2 tens – 1 ten = 1 ten                                                                                                              |
| O   |    <br>                                                                                                                                                             | 7 ones – 3 ones = 4 ones                                                                                                            |

2 ten thousands left

5 thousands – 6 thousands cannot be done. Exchange ten thousand for ten thousands becoming 15 thousands – 6 thousands = 9 thousands

7 hundreds – 3 hundreds = 4 hundreds

2 tens – 1 ten = 1 ten

7 ones – 3 ones = 4 ones

### Column Method

Starting with the ones, subtract each column in turn. Exchange tens, hundreds, thousands and/or ten thousands as required.

$$\begin{array}{r} 35727 \\ - 6313 \\ \hline 29414 \end{array}$$

## Estimate and Approximate

### Rounding to Estimate

$$41\ 635 + 7386 = 49\ 021$$

Round to ten:

$$41\ 630 + 7380 = 49\ 010$$

$$41\ 630 + 7390 = 49\ 020$$

$$41\ 640 + 7390 = 49\ 030$$

Rounding is not as accurate when both numbers are rounded up. A better estimate comes from "rounding" one down and one up.

### Estimating on a Number Line



The arrow is about  $\frac{3}{4}$  of the way across the line so it is 40 000.



## Inverse Operations

Use the inverse to check:

53 476

32 732

20 744

To check  $53\ 476 - 32\ 732 = 20\ 744$   
use  $32\ 732 + 20\ 744 = 53\ 476$

Start with a number, subtract 409 and double. I end with 6264. To find the starting number use the inverse: halve, then add 409. Half of 6264 = 3132.  $3132 + 409 = 3541$ . The starting number was 3541.

## Multistep Problems

### Using a Bar Model

The sum of two numbers is 25 567.

The difference is 1875.



Subtract 1875 from 25 567 = 23 692.

Halve 23 692 to find smaller number = 11 846.

Add 1875 to find larger number = 13 721.

|        |       |       |                                                     |
|--------|-------|-------|-----------------------------------------------------|
| £20    |       |       | £20 is used to buy 2 books costing £3.75 and £8.49. |
| £3.75  | £8.49 | ?     |                                                     |
| £12.24 |       | £7.76 | How much change is given?                           |

$$£3.75 + £8.49 = £12.24$$

$$£20.00 - £12.24 = £7.76$$