

Key Vocabulary

- add
- total
- plus
- make
- more
- altogether
- difference
- less
- subtract
- minus
- take away
- mentally
- column addition
- column subtraction
- Inverse operation
- Exchange
- number facts
- place value
- complex

Addition

Place Value Grid

$$3274 + 5601 = 8875$$



Column method

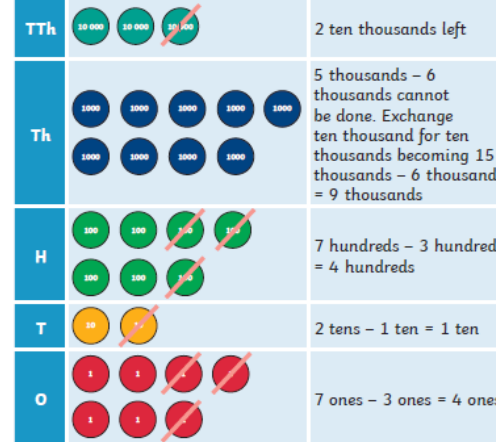
Starting with the ones, add each column in turn. Regroup tens, hundreds, thousands, ten thousands as required

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

Subtraction

Place Value Grid

$$35,727 - 6313 = 29,414$$



Column method

Starting with the ones, subtract each column in turn. Exchange tens, hundreds, thousands and 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:

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

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

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

Estimating on a Number Line



We can **round numbers to the nearest 10** to find an **estimate** answer before calculating the calculation. We can then check our answer against our estimate as a way of checking.

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

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

Inverse operations

Using the inverse to check answers

53 476

32 732

20 744

To check $53,476 - 32,732 = 20,744$
Use $32,732 + 20,744 = 53,476$

Bar models can help you understand the inverse operation.

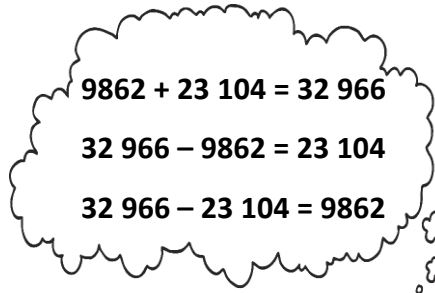
How many number sentences can you make from the calculation below?

$$23\ 104 + 9862 = 32\ 966$$

$$9862 + 23\ 104 = 32\ 966$$

$$32\ 966 - 9862 = 23\ 104$$

$$32\ 966 - 23\ 104 = 9862$$



I am thinking of a number. I add 7852 and then subtract 2607. I now have 32 451. What is my number?

$$27\ 206 \quad (32\ 451 + 2607 = 35\ 058, 35\ 058 - 7852 = 27\ 206)$$

When calculating 'I'm thinking of a number' questions, we need to do the inverse of every calculation.

E.g. If a number is added, we need to subtract it
If a number is subtracted, we need to add it
If a number is multiplied, we need to divide
If a number is divided, we need to multiply

Multi-step 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 small number = 11,846
Add 1875 to find larger number = 13,721

£20		
£3.75	£8.49	?
£12.24		£7.76

£20 is used to buy 2 books costing £3.75 and £8.49

The change given would be £7.76

$$\begin{aligned} \text{£}3.75 + \text{£}8.49 &= \text{£}12.24 \\ \text{£}20.00 - \text{£}12.24 &= \text{£}7.76 \end{aligned}$$