

Key Terms and questions

Addition add total plus sum more altogether increase double near double

Subtraction difference subtract less minus take away

How many more to make..? How much more? How many more? How many fewer?

Vocabulary

| | |
|---------------------------|--|
| addition + | Bringing two or more numbers (or things) together to make a new total. |
| subtraction - | Taking one number away from another. |
| mental/ mentally | Calculating in your head. |
| column addition | Addition by writing one number below the other and then adding one column at a time |
| column subtraction | Addition by writing one number below the other and then subtracting one column at a time |
| estimate | To find a value that is close enough to the right answer, usually with some thought or calculation involved. |
| inverse | Inverse means the opposite in effect. The reverse of. The Inverse of Adding is Subtracting |
| boundary | When crossing ones, tens or hundreds boundaries more than one digit will change. |
| equals sign = | Is the same as |

Formal Methods

Column addition and subtraction

Add 4-digit numbers

No exchange

$$\begin{array}{r} 5162 \\ +3427 \\ \hline 8589 \end{array}$$

Starting with the ones, add each column in turn.

One exchange

$$\begin{array}{r} 5162 \\ +3497 \\ \hline 8659 \\ \hline 1 \end{array}$$

Starting with the ones, add each column in turn. When adding

6 tens + 9 tens = 15 tens

= 1 hundred + 5 tens

Place 1 hundred under the hundreds answer and 5 tens in the answer.

Multiple exchanges

$$\begin{array}{r} 5864 \\ +3497 \\ \hline 9361 \\ \hline 111 \end{array}$$

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

Subtract 4-digit numbers

No exchange

$$\begin{array}{r} 5789 \\ -3421 \\ \hline 2368 \end{array}$$

Starting with the ones, subtract each column in turn.

One exchange

$$\begin{array}{r} 61 \\ 5749 \\ -3471 \\ \hline 2278 \end{array}$$

Starting with the ones, subtract each column in turn. When subtracting 4

tens -7 tens, exchange 1 hundred to make:

14 tens - 7 tens = 7 tens

Multiple exchanges

$$\begin{array}{r} 6131 \\ 5742 \\ -3476 \\ \hline 2266 \end{array}$$

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

Adding and subtracting with decimals

$$\begin{array}{r}
 \pounds 23.59 \\
 + \pounds 7.55 \\
 \hline
 \pounds 31.14 \\
 \begin{array}{ccc}
 1 & 1 & 1
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 76.3 \\
 - 34.1 \\
 \hline
 42.2
 \end{array}$$

| | | | | |
|-----|----|---|-----|----|
| £10 | £1 | . | 10p | 1p |
| 56 | 14 | . | 78 | 11 |
| - | 2 | 5 | . | 6 |
| £ | 3 | 9 | . | 1 |
| | | | | 9 |

Using rounding to estimate

$1635 + 386 = 2021$

Round to the nearest ten

$1640 + 390 = 2030$

Round to the nearest hundred

$1600 + 400 = 2000$

Both give a reasonable estimate, but rounding the nearest ten is more accurate.

$9362 - 5729 = 3622$

Round to the nearest hundred

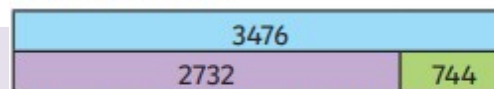
$9400 - 5700 = 3700$

Round to the nearest thousand

$9000 - 6000 = 3000$

Rounding to the nearest hundred is much more accurate in this case.

Use the inverse to check your answer



$3476 - 744 = 2732$ can be checked using
 $2732 + 744 = 3476$

This part whole shows the inverse calculations using these three numbers.



| | |
|----------------------|----------------------|
| $1549 + 2688 = 4237$ | $2688 + 1549 = 4237$ |
| $4237 - 1549 = 2688$ | $4237 - 2688 = 1549$ |

Commutative and Associative

Commutative
 $342 + 187$ is equal to $187 + 342$

Associative
 Addition can be done in any order
 $46 + 39 + 14 = 46 + 14 + 39$

Addition

Subtraction

$$8 + 9 = 17$$

addend + addend = sum

$$17 - 9 = 8$$

minuend - subtrahend = difference