KS2 Problem

Identify the Letters

In the following addition calculations some of the digits have been covered with letters.
The same letter stands for the same digit.
Identify which digit each letter stands for.

$$
\begin{array}{r}
5\ 4\ A \\
+\ 2\ B\ 3 \\
\hline
C\ 1\ D \\
\hline
\end{array}
$$

A =

B =

C =

D =

$$
\begin{array}{r}
A\ 6\ 8 \\
+\ 2\ 3\ B \\
\hline
C\ 0\ C \\
\hline
\end{array}
$$

A =

B =

C =

Challenge 1

$$
\begin{array}{r}
8\ 3\ 5\ A \\
+\ \ \ A\ B\ 2 \\
\hline
B\ 1\ 4\ B \\
\hline
\end{array}
$$

A =

B =

KS2 Problem


```
    6  4  5  A
+   B  3  C  2
  ─────────────
 1  3  A  5  D
```

A =

B =

C =

D =

Challenge 2

```
    A  7  B  1  5
+   2  C  3  D  E
  ───────────────
    7  5  E  2  A
```

A =

B =

C =

D =

E =

```
    A  B  0  C  8
+   3  A  1  9  B
  ───────────────
    9  1  C  C  4
```

A =

B =

C =

KS2 Problem

Support for Parents and Carers

Encourage your child to use what we call a trial and improvement method to solve these problems. That means that if their first guess at the digits isn't correct, they don't remove them all, they think about what needs to be changed and how, rather than starting from scratch each time. When your child has solved the problem, ask them how they did it.

When deciding which letter to identify first, encourage your child to think about what they know from the calculation, e.g.

$$\begin{array}{r} 5\ 4\ \boxed{A} \\ +\ 2\ \boxed{B}\ 3 \\ \hline \boxed{C}\ 1\ \boxed{D} \end{array}$$

In this calculation we know that 4 tens add the numbers of tens that B is equals 110. This would give 1 ten in the answer and 1 hundred would be 'carried' into the hundreds column.

$$\begin{array}{r} 5\ 4\ \boxed{A} \\ +\ 2\ \boxed{B}\ 3 \\ \hline 8\ \ 1\ \ \boxed{D} \\ {\scriptstyle 1} \end{array}$$

(6 or 7 above B)

C must therefore be 8 hundreds.

B must be either 6 tens or 7 tens, depending on whether a ten was 'carried' from the ones column.

A and D cannot be 1, 2, 3, 4, 5 or 8 as these digits can already be seen.

$$\begin{array}{r} 5\ 4\ 6 \\ +\ 2\ 7\ 3 \\ \hline 8\ \ 1\ \ 9 \\ {\scriptstyle 1} \end{array}$$

If we try making B equal to 7 tens, that means the total of the ones column must be less than 10. The only possibilities left are that A is 6 ones and D is 9 ones.

$$\begin{array}{r} 5\ 4\ 7 \\ +\ 2\ 6\ 3 \\ \hline 8\ \ 1\ \ 0 \\ {\scriptstyle 1}\ \ {\scriptstyle 1} \end{array}$$

There is another possible answer.

If we make B equal to 6 tens, that means the total of the ones column must be 10 or more. The only possibilities left are that A is 7 ones and D is 0 ones.

KS2 Problem

Solution

```
  A 6 8
+ 2 3 B
-------
  C 0 C
```

A = 4

B = 9

C = 7

Challenge 1 - Solution

```
  8 3 5 A
+   A B 2
---------
  B 1 4 B
```

A = 7

B = 9

```
  6 4 5 A
+ B 3 C 2
---------
1 3 A 5 D
```

A = 8

B = 7

C = 9

D = 0

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Challenge 2 - Solution

```
  A 7 B 1 5
+ 2 C 3 D E
---------------
  7 5 E 2 A
```

A = 4

B = 6

C = 8

D = 0

E = 9

```
  A B 0 C 8
+ 3 A 1 9 B
---------------
  9 1 C C 4
```

A = 5

B = 6

C = 2