



Learn a new puzzle

Letter Sums

Each letter hides a digit. Crack the sum.

Trick: Start with the carry

1

	D	E	S	K	
+	D	E	S	K	
	S	U	N	N	Y

DESK + DESK has an extra letter, S. Two 4-digit numbers make at most 19998.

2

	D	E	1 _S	K	
+	D	E	1 _S	K	
	1 _S	U	N	N	Y

So S = 1: the carry out of the top.

3

	7 _D	6 _E	1 _S	4 _K	
+	7 _D	6 _E	1 _S	4 _K	
	1 _S	5 _U	2 _N	2 _N	8 _Y

Work from the ones with the carry: $7614 + 7614 = 15228$.

Try it

	B	E	E	
+	I	C	E	
	W	E	L	L

B = 8

I = 6

The answer is with the other answers.

Talk about it: Ask: Which letter did you find first, and why that one?

**1****Letter Sums**

Each letter hides a digit. Crack the sum. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r} \text{M O P} \\ + \text{J A R} \\ \hline \text{R A I N} \end{array}$$

$I = 0$

$J = 6$

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.

2**Letter Sums**

Each letter hides a digit. Crack the sum. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r} \text{P A N} \\ + \text{Z I P} \\ \hline \text{L A M P} \end{array}$$

$M = 8$

$P = 5$

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.

3**Letter Sums**

Each letter hides a digit. Crack the sum. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r} \text{M A P} \\ + \text{P A N} \\ \hline \text{S E E D} \end{array}$$

$M = 7$

$P = 8$

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.

4**Letter Sums**

Each letter hides a digit. Crack the sum. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r} \text{H A T} \\ + \text{N A P} \\ \hline \text{H O M E} \end{array}$$

$P = 3$

$T = 9$

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.



- 5 Letter Sums** Each letter hides a digit. Crack the sum. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r}
 \text{C} \text{ A} \text{ K} \text{ E} \\
 + \text{C} \text{ A} \text{ K} \text{ E} \\
 \hline
 \text{D} \text{ A} \text{ N} \text{ C} \text{ E}
 \end{array}$$

K = 8

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.

- 6 Letter Sums** Each letter hides a digit. Crack the sum. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r}
 \text{G} \text{ U} \text{ M} \\
 + \text{G} \text{ U} \text{ M} \\
 \hline
 \text{L} \text{ E} \text{ G}
 \end{array}$$

E = 0

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.

- 7 Letter Sums** Each letter hides a digit. Crack the sum. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r}
 \text{L} \text{ A} \text{ P} \\
 + \text{L} \text{ A} \text{ P} \\
 \hline
 \text{C} \text{ U} \text{ P}
 \end{array}$$

C = 4

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.

- 8 Letter Sums** Each letter hides a digit. Crack the subtraction. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r}
 \text{B} \text{ R} \text{ E} \text{ A} \text{ D} \\
 - \text{D} \text{ A} \text{ N} \text{ C} \text{ E} \\
 \hline
 \text{Q} \text{ U} \text{ E} \text{ E} \text{ N}
 \end{array}$$

B = 4

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.

**9****Letter Sums**

Each letter hides a digit. Crack the subtraction. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r} \text{L E M O N} \\ - \text{C L O W N} \\ \hline \text{C R O W N} \end{array}$$

$L = 9$

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.

10**Letter Sums**

Each letter hides a digit. Crack the subtraction. Same letter, same digit; different letters, different digits; no number starts with 0.



$$\begin{array}{r} \text{W H E E L} \\ - \text{H O R S E} \\ \hline \text{H O U S E} \end{array}$$

$O = 6$

$R = 9$

0	1	2	3	4	5	6	7	8	9
---	---	---	---	---	---	---	---	---	---

Cross out the digits you use.



Answers

 For grown-ups. Cut off or keep this page aside until the puzzles are done.

Learn · Letter Sums

$$\begin{array}{r}
 \begin{array}{|c|c|c|} \hline 8 & 5 & 5 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|} \hline 6 & 4 & 5 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|} \hline 1 & 5 & 0 & 0 \\ \hline \end{array}
 \end{array}$$

B = 8
I = 6

#1

$$\begin{array}{r}
 \begin{array}{|c|c|c|} \hline 5 & 8 & 3 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|} \hline 6 & 2 & 1 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|} \hline 1 & 2 & 0 & 4 \\ \hline \end{array}
 \end{array}$$

I = 0
J = 6

583 + 621 = 1204. R = 1: two numbers that short make at most a carry of 1 into the extra column.

#2

$$\begin{array}{r}
 \begin{array}{|c|c|c|} \hline 5 & 2 & 0 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|} \hline 7 & 6 & 5 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|} \hline 1 & 2 & 8 & 5 \\ \hline \end{array}
 \end{array}$$

M = 8
P = 5

520 + 765 = 1285. L = 1: two numbers that short make at most a carry of 1 into the extra column.

#3

$$\begin{array}{r}
 \begin{array}{|c|c|c|} \hline 7 & 2 & 8 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|} \hline 8 & 2 & 6 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|} \hline 1 & 5 & 5 & 4 \\ \hline \end{array}
 \end{array}$$

M = 7
P = 8

728 + 826 = 1554. S = 1: two numbers that short make at most a carry of 1 into the extra column.

#4

$$\begin{array}{r}
 \begin{array}{|c|c|c|} \hline 1 & 7 & 9 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|} \hline 8 & 7 & 3 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|} \hline 1 & 0 & 5 & 2 \\ \hline \end{array}
 \end{array}$$

P = 3
T = 9

179 + 873 = 1052. H = 1: two numbers that short make at most a carry of 1 into the extra column.

#5

$$\begin{array}{r}
 \begin{array}{|c|c|c|c|} \hline 6 & 2 & 8 & 0 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|c|} \hline 6 & 2 & 8 & 0 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|c|} \hline 1 & 2 & 5 & 6 & 0 \\ \hline \end{array}
 \end{array}$$

K = 8

6280 + 6280 = 12560. D = 1: two numbers that short make at most a carry of 1 into the extra column.

#6

$$\begin{array}{r}
 \begin{array}{|c|c|c|} \hline 4 & 5 & 2 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|} \hline 4 & 5 & 2 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|} \hline 9 & 0 & 4 \\ \hline \end{array}
 \end{array}$$

E = 0

452 + 452 = 904. Start with the letters you know (E = 0) and work from the ones.

#7

$$\begin{array}{r}
 \begin{array}{|c|c|c|} \hline 2 & 3 & 0 \\ \hline \end{array} \\
 + \begin{array}{|c|c|c|} \hline 2 & 3 & 0 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|} \hline 4 & 6 & 0 \\ \hline \end{array}
 \end{array}$$

C = 4

230 + 230 = 460. P = 0: P + P ends in P only when P is 0.

#8

$$\begin{array}{r}
 \begin{array}{|c|c|c|c|c|} \hline 4 & 6 & 2 & 0 & 1 \\ \hline \end{array} \\
 - \begin{array}{|c|c|c|c|c|} \hline 1 & 0 & 9 & 7 & 2 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|c|} \hline 3 & 5 & 2 & 2 & 9 \\ \hline \end{array}
 \end{array}$$

B = 4

46201 - 10972 = 35229. Check it as an addition: DANCE + QUEEN = BREAD. Start with the letters you know (B = 4) and work from the ones. Check both cases for D (1 or 2): only 1 works.

#9

$$\begin{array}{r}
 \begin{array}{|c|c|c|c|c|} \hline 9 & 7 & 5 & 2 & 0 \\ \hline \end{array} \\
 - \begin{array}{|c|c|c|c|c|} \hline 4 & 9 & 2 & 6 & 0 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|c|} \hline 4 & 8 & 2 & 6 & 0 \\ \hline \end{array}
 \end{array}$$

L = 9

97520 - 49260 = 48260. Check it as an addition: CLOWN + CROWN = LEMON. N = 0: N + N ends in N only when N is 0.

#10

$$\begin{array}{r}
 \begin{array}{|c|c|c|c|c|} \hline 7 & 3 & 4 & 4 & 8 \\ \hline \end{array} \\
 - \begin{array}{|c|c|c|c|c|} \hline 3 & 6 & 9 & 2 & 4 \\ \hline \end{array} \\
 \hline
 \begin{array}{|c|c|c|c|c|} \hline 3 & 6 & 5 & 2 & 4 \\ \hline \end{array}
 \end{array}$$

O = 6
R = 9

73448 - 36924 = 36524. Check it as an addition: HORSE + HOUSE = WHEEL. Start with the letters you know (O = 6, R = 9) and work from the ones.