Smart Subtract™

Puzzle Instructions

Smart Subtract Puzzles combine the fun and ingenuity of puzzles with the repetition and practice kids need to master their basic subtraction facts. Each puzzle is composed of two-step problems in a crossword-like format.

Skill Development
This unique and “puzzling” approach teaches kids to:

1. Subtract single-digit numbers quickly and efficiently
2. Master sums of 10 - a foundational skill for both addition and subtraction
3. Develop their “mental math” skills by working with sums and differences in their head
4. Think algebraically by solving for missing addends and subtrahends

3 Levels of Difficulty
- **Foundational** puzzles are the easiest and focus on two important skills: subtracting single-digit numbers and making sums of 10.

- **Intermediate** puzzles build on the foundational puzzles and challenge kids to subtract larger numbers before making sums of 10.

- **Advanced** puzzles are the most difficult and add a challenging twist. Students must think algebraically and “work backwards” to find missing subtrahends - the number that is subtracted to get the difference.

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Foundational Example: Make a 10

Subtract the first two numbers: 5 - 2 = 3.
Next, find the missing addend: 3 + ? = 10.
Since 3 + 7 = 10, the answer is 7.

Subtract the first two numbers: 8 - 2 = 6.
Next, find the missing addend: 6 + ? = 10.
Since 6 + 4 = 10, the answer is 4.

Intermediate Example: Make a 10

Subtract the first two numbers: 14 - 9 = 5.
Next, find the missing addend: 5 + ? = 10.
Since 5 + 5 = 10, the answer is 5.

Subtract the first two numbers: 14 - 6 = 8.
Next, find the missing addend: 8 + ? = 10.
Since 8 + 2 = 10, the answer is 2.

Advanced Example: Make a 9

Add the first two numbers: 8 + 5 = 13.
Next, find the missing subtrahend: 13 - ? = 9.
Since 13 - 4 = 9, the answer is 4.

Add the first two numbers: 5 + 7 = 12.
Next, find the missing subtrahend: 12 - ? = 9.
Since 12 - 3 = 9, the answer is 3.
Write a single-digit number in each empty box so every expression across or down equals 10. Calculate from left to right and top to bottom.
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Write a single-digit number in each empty box so every expression across or down equals **10**. Calculate from left to right and top to bottom.

**10s**

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10s

\[
\begin{array}{ccc}
14 & - & 8 & + \quad a \\
- & & & \\
12 & - & 9 & + \quad b \\
- & + & & \\
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- & + & & \\
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+ & & & \\
13 & - & 8 & + \quad f \\
+ & & & \\
11 & - & & \quad h \\
+ & & & \\
\end{array}
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Write a single-digit number in each empty box so every expression across or down equals 10. Calculate from left to right and top to bottom.
Write a single-digit number in each empty box so every expression across or down equals 10. Calculate from left to right and top to bottom.

8 + 9 - a  9 + 9 - b
+ 8 + 8 - c
7 + 8 - d + e
+ 6 + f - g
+ 7 + h  + i
9 - 9 - j - k
8 + l

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Write a single-digit number in each empty box so every expression across or down equals 9. Calculate from left to right and top to bottom.

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Write a single-digit number in each empty box so every expression across or down equals 8. Calculate from left to right and top to bottom.

```
    +  9  -  a
  +               +
  6  +  7  -  c
  -               +  -
  9  +  6  -  d  9  +  -  e  f
  +               -  +
  5  6  +  8  -  g
  -               +  5
  h  +  6  -  i
  +  6  -  j
```
Write a single-digit number in each empty box so every expression across or down equals 7. Calculate from left to right and top to bottom.
Write a single-digit number in each empty box so every expression across or down equals 6. Calculate from left to right and top to bottom.

6s

\[
\begin{array}{cccc}
8 & + & 9 & + 6 - a \\
7 & - & 3 & + 8 - b \\
5 & + & c & - d \\
9 & + 4 & - f & 7 \\
5 & + & e \\
3 & + 9 & - g \\
3 & + h & - i
\end{array}
\]
Write a single-digit number in each empty box so every expression across or down equals 5. Calculate from left to right and top to bottom.

\[
\begin{array}{|c|c|c|}
\hline
4 & + & 7 \\
\hline
& + & \\
\hline
7 & - & a \\
\hline
\end{array}
\quad
\begin{array}{|c|c|c|}
\hline
9 & + & 2 \\
\hline
& + & \\
\hline
4 & + & 6 \\
\hline
\end{array}
\]

\[
\begin{array}{|c|c|c|}
\hline
3 & + & \\
\hline
& + & \\
\hline
7 & - & \\
\hline
\end{array}
\quad
\begin{array}{|c|c|c|}
\hline
f & + & 4 \\
\hline
& + & \\
\hline
6 & + & 8 \\
\hline
\end{array}
\quad
\begin{array}{|c|c|c|}
\hline
4 & + & \\
\hline
& + & \\
\hline
j & - & \\
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\end{array}
\quad
\begin{array}{|c|c|c|}
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k & - & l \\
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\end{array}
\]
Foundational
3-1: a=7  b=8  c=9  d=4  e=3  f=2  g=5  h=6  i=9
3-2: a=8  b=4  c=5  d=6  e=7  f=3  g=9  h=7  i=1  j=2
3-3: a=9  b=4  c=5  d=2  e=3  f=8  g=6  h=7  i=6  j=9
3-4: a=7  b=6  c=8  d=9  e=5  f=2  g=3  h=8  i=4
3-5: a=2  b=6  c=5  d=9  e=8  f=3  g=9  h=7  i=4  j=8
3-6: a=4  b=3  c=6  d=9  e=5  f=2  g=8  h=7  i=8

Intermediate
3-7: a=5  b=3  c=6  d=2  e=1  f=7  g=4  h=8  i=2
3-8: a=4  b=7  c=5  d=4  e=6  f=5  g=1  h=3  i=2
3-9: a=4  b=8  c=1  d=3  e=6  f=6  g=5  h=2  i=1
3-10: a=1  b=4  c=2  d=7  e=3  f=4  g=1  h=6  i=3
3-11: a=4  b=8  c=6  d=2  e=3  f=1  g=5  h=3  i=1
3-12: a=2  b=3  c=1  d=6  e=4  f=6  g=3  h=5  i=1
3-13: a=5  b=6  c=4  d=2  e=3  f=7  g=5  h=1  i=2
3-14: a=5  b=2  c=6  d=5  e=3  f=2  g=4  h=4  i=1

Advanced
3-15: a=7  b=8  c=6  d=5  e=3  f=5  g=2  h=1  i=4  j=2  k=6  l=1
3-16: a=8  b=3  c=5  d=7  e=4  f=6  g=5  h=6  i=3  j=1  k=2
3-17: a=8  b=3  c=5  d=7  e=4  f=5  g=6  h=6  i=4  j=2
3-18: a=9  b=4  c=7  d=6  e=5  f=8  g=7  h=3  i=3  j=4
3-19: a=9  b=5  c=9  d=8  e=5  f=7  g=6  h=7  i=4
3-20: a=6  b=6  c=5  d=9  e=7  f=8  g=7  h=9  i=5  j=8  k=8  l=7