Arithmetics
Subtraction base 10
calculator-algebra.org

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Example (One digit subtraction, result >0)

Subtract the one-digit numbers.

$$
\begin{aligned}
5-3 &= \\
4-0 &= \\
7-4 &= \\
8-2 &= \\
9-7 &=
\end{aligned}
$$

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$5 - 3 = \textbf{?} \quad \text{because } 3 + \textbf{?} = 5$$
$$4 - 0 =$$
$$7 - 4 =$$
$$8 - 2 =$$
$$9 - 7 =$$

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{aligned} 5-3 &= 2 \quad \big| \text{ because } 3+2=5 \\ 4-0 &= \\ 7-4 &= \\ 8-2 &= \\ 9-7 &= \end{aligned}$$

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{array}{rcl|l} 5-3 & = & 2 & \text{because } 3+2=5 \\ 4-0 & = & \textbf{?} & \text{because } 0+\textbf{?}=4 \\ 7-4 & = & & \\ 8-2 & = & & \\ 9-7 & = & & \end{array}$$

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{array}{rcl|l} 5-3 & = & 2 & \text{because } 3+2=5 \\ 4-0 & = & 4 & \text{because } 0+4=4 \\ 7-4 & = & & \\ 8-2 & = & & \\ 9-7 & = & & \end{array}$$

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$5 - 3$	$=$	2	because $3 + 2 = 5$
$4 - 0$	$=$	4	because $0 + 4 = 4$
$7 - 4$	$=$	**?**	because $4 +$ **?** $= 7$
$8 - 2$	$=$		
$9 - 7$	$=$		

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$5 - 3$	$=$	2	because $3 + 2 = 5$
$4 - 0$	$=$	4	because $0 + 4 = 4$
$7 - 4$	$=$	3	because $4 + 3 = 7$
$8 - 2$	$=$		
$9 - 7$	$=$		

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$5-3$	$=$	2	because $3+2=5$
$4-0$	$=$	4	because $0+4=4$
$7-4$	$=$	3	because $4+3=7$
$8-2$	$=$	**?**	because $2+$ **?** $=8$
$9-7$	$=$		

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$5 - 3$	$=$	2	because $3 + 2 = 5$
$4 - 0$	$=$	4	because $0 + 4 = 4$
$7 - 4$	$=$	3	because $4 + 3 = 7$
$8 - 2$	$=$	6	because $2 + 6 = 8$
$9 - 7$	$=$		

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$5 - 3$	$=$	2	because $3 + 2 = 5$
$4 - 0$	$=$	4	because $0 + 4 = 4$
$7 - 4$	$=$	3	because $4 + 3 = 7$
$8 - 2$	$=$	6	because $2 + 6 = 8$
$9 - 7$	$=$	$\mathbf{?}$	because $7 + \mathbf{?} = 9$

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$5-3$	$=$	2	because $3+2=5$
$4-0$	$=$	4	because $0+4=4$
$7-4$	$=$	3	because $4+3=7$
$8-2$	$=$	6	because $2+6=8$
$9-7$	$=$	2	because $7+2=9$

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$6 - 1 =$$
$$9 - 5 =$$
$$8 - 2 =$$

+										

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$6 - 1 = \textbf{?} \quad \text{because } 1 + \textbf{?} = 6$$
$$9 - 5 =$$
$$8 - 2 =$$

+		1								
?		6								

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$6 - 1 = 5 \quad \text{because } 1 + 5 = 6$$
$$9 - 5 =$$
$$8 - 2 =$$

+		1								
5		6								

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{array}{lcl|l} 6-1 & = & 5 & \text{because } 1+5=6 \\ 9-5 & = & \textbf{?} & \text{because } 5+\textbf{?}=9 \\ 8-2 & = & & \end{array}$$

+		1				5				
?						9				
5		6								

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{array}{rcl|l} 6-1 & = & 5 & \text{because } 1+5=6 \\ 9-5 & = & 4 & \text{because } 5+4=9 \\ 8-2 & = & & \end{array}$$

+		1				5				
4						9				
5		6								

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{array}{rcl|l} 6-1 & = & 5 & \text{because } 1+5=6 \\ 9-5 & = & 4 & \text{because } 5+4=9 \\ 8-2 & = & ? & \text{because } 2+?=8 \end{array}$$

+		1	2			5				
4						9				
5		6								
?			8							

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{array}{rcl|l} 6-1 & = & 5 & \text{because } 1+5=6 \\ 9-5 & = & 4 & \text{because } 5+4=9 \\ 8-2 & = & 6 & \text{because } 2+6=8 \end{array}$$

+		1	2			5				
4						9				
5		6								
6			8							

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{array}{rcl|l} 6-1 & = & 5 & \text{because } 1+5=6 \\ 9-5 & = & 4 & \text{because } 5+4=9 \\ 8-2 & = & 6 & \text{because } 2+6=8 \end{array}$$

+	?	1	2	?	?	5	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
4	?	?	?	?	?	9	?	?	?	?
5	?	6	?	?	?	?	?	?	?	?
6	?	?	8	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$\begin{array}{rcl|l} 6-1 & = & 5 & \text{because } 1+5=6 \\ 9-5 & = & 4 & \text{because } 5+4=9 \\ 8-2 & = & 6 & \text{because } 2+6=8 \end{array}$$

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

- To do one-digit subtraction: guess from addition table.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 =$$
$$8 - 4 =$$
$$7 - 7 =$$

+										

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 =$$
$$8 - 4 =$$
$$7 - 7 =$$

9

2

+			2							
			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 =$$
$$8 - 4 =$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ 2 \end{array}$$

+			2							
			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 =$$
$$8 - 4 =$$
$$7 - 7 =$$

9
2

+			2							
			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 =$$
$$8 - 4 =$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ - \; 2 \\ \hline \end{array}$$

+			2							
			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = \textbf{?}$$
$$8 - 4 =$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline \textbf{?} \end{array}$$

+			2							
?			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 =$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array}$$

+			2							
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 =$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad 8 \\ 4$$

+			2		4					
					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 =$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ 4 \end{array}$$

+			2		4					
					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 =$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad 8 \\ 4$$

+			2		4					
					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 =$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline \end{array}$$

+			2		4					
					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = ?$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline ? \end{array}$$

+			2		4					
?					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array}$$

+			2		4					
4					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array} \qquad 7$$

+			2		4			7		
								7		
4					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 7 \\ 7 \end{array}$$

+			2		4			7		
								7		
4					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 7 \\ 7 \\ \hline \end{array}$$

+			2		4			7		
								7		
4					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 =$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 7 \\ -\ 7 \\ \hline \end{array}$$

+			2		4			7		
								7		
4					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 = ?$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 7 \\ -\ 7 \\ \hline ? \end{array}$$

+			2		4			7		
?								7		
4					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 = 0$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 7 \\ -\ 7 \\ \hline 0 \end{array}$$

+			2		4			7		
0								7		
4					8					
7			9							

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 = 0$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 7 \\ -\ 7 \\ \hline 0 \end{array}$$

+	?	?	2	?	4	?	?	7	?	?
0	?	?	?	?	?	?	?	7	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
4	?	?	?	?	8	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
7	?	?	9	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$9 - 2 = 7$$
$$8 - 4 = 4$$
$$7 - 7 = 0$$

$$\begin{array}{r} 9 \\ -\ 2 \\ \hline 7 \end{array} \qquad \begin{array}{r} 8 \\ -\ 4 \\ \hline 4 \end{array} \qquad \begin{array}{r} 7 \\ -\ 7 \\ \hline 0 \end{array}$$

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

- Subtraction can also be written in columns.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 =$$
$$10 - 5 =$$
$$18 - 9 =$$

+										

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 =$$
$$10 - 5 =$$
$$18 - 9 =$$

11
3

+				3						
				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 =$$
$$10 - 5 =$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ 3 \end{array}$$

+				3						
				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 =$$
$$10 - 5 =$$
$$18 - 9 =$$

11
3

+				3						
				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 =$$
$$10 - 5 =$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline \end{array}$$

+				3						
				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = \text{?}$$
$$10 - 5 =$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline \text{?} \end{array}$$

+				3						
?				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 =$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline 8 \end{array}$$

+				3						
8				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 =$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline 8 \end{array} \qquad 10 \quad 5$$

+				3		5				
						10				
8				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 =$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ 5 \end{array}$$

+				3		5				
						10				
8				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 =$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline 8 \end{array} \qquad 10 \quad 5$$

+				3		5				
						10				
8				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 =$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ -\ 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ -\ 5 \\ \hline \end{array}$$

+				3		5				
						10				
8				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = ?$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ -\ 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ -\ 5 \\ \hline ? \end{array}$$

+				3		5				
?						10				
8				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ - \quad 5 \\ \hline 5 \end{array}$$

+				3		5				
5						10				
8				11						

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \;\; 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ - \;\; 5 \\ \hline 5 \end{array} \qquad \begin{array}{r} 18 \\ 9 \end{array}$$

+				3		5				9
5						10				
8				11						
										18

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ - \quad 5 \\ \hline 5 \end{array} \qquad \begin{array}{r} 18 \\ 9 \end{array}$$

+				3		5				9
5						10				
8				11						
										18

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ - \quad 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ - \quad 5 \\ \hline 5 \end{array} \qquad 18 \\ \quad\; 9$$

+				3		5				9
5						10				
8				11						
										18

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 =$$

$$\begin{array}{r} 11 \\ -\ 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ -\ 5 \\ \hline 5 \end{array} \qquad \begin{array}{r} 18 \\ -\ 9 \\ \hline \end{array}$$

+				3		5				9
5						10				
8				11						
										18

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 = ?$$

$$\begin{array}{r} 11 \\ -\ 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ -\ 5 \\ \hline 5 \end{array} \qquad \begin{array}{r} 18 \\ -\ 9 \\ \hline ? \end{array}$$

+				3		5				9
5						10				
8				11						
?										18

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 = 9$$

$$\begin{array}{r} 11 \\ -\ 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ -\ 5 \\ \hline 5 \end{array} \qquad \begin{array}{r} 18 \\ -\ 9 \\ \hline 9 \end{array}$$

+				3		5				9
5						10				
8				11						
9										18

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 = 9$$

$$\begin{array}{r} 11 \\ -\ 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ -\ 5 \\ \hline 5 \end{array} \qquad \begin{array}{r} 18 \\ -\ 9 \\ \hline 9 \end{array}$$

+	?	?	?	3	?	5	?	?	?	9
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
5	?	?	?	?	?	10	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
?	?	?	?	?	?	?	?	?	?	?
8	?	?	?	11	?	?	?	?	?	?
9	?	?	?	?	?	?	?	?	?	18

- Addition table: can be used for subtraction from small two-digit numbers.

Example (One digit subtraction, result > 0)

Subtract the one-digit numbers.

$$11 - 3 = 8$$
$$10 - 5 = 5$$
$$18 - 9 = 9$$

$$\begin{array}{r} 11 \\ -\ 3 \\ \hline 8 \end{array} \qquad \begin{array}{r} 10 \\ -\ 5 \\ \hline 5 \end{array} \qquad \begin{array}{r} 18 \\ -\ 9 \\ \hline 9 \end{array}$$

+	0	1	2	3	4	5	6	7	8	9
0	0	1	2	3	4	5	6	7	8	9
1	1	2	3	4	5	6	7	8	9	10
2	2	3	4	5	6	7	8	9	10	11
3	3	4	5	6	7	8	9	10	11	12
4	4	5	6	7	8	9	10	11	12	13
5	5	6	7	8	9	10	11	12	13	14
6	6	7	8	9	10	11	12	13	14	15
7	7	8	9	10	11	12	13	14	15	16
8	8	9	10	11	12	13	14	15	16	17
9	9	10	11	12	13	14	15	16	17	18

- Addition table: can be used for subtraction from small two-digit numbers.

Negative integers

- The negative integers are the numbers:

$$\ldots, -6, -5, -4, -3, -2, -1$$

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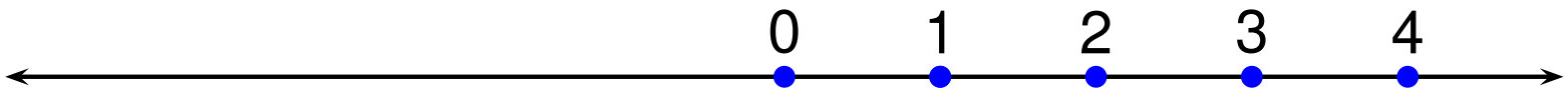
- Negatives are to the left of 0 on the number line.



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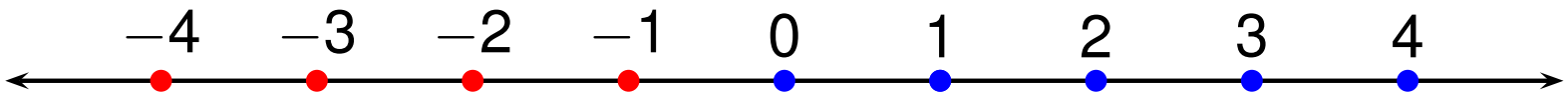

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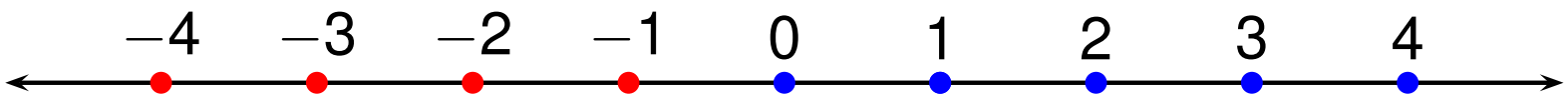

  - -1 is as far away from 0 as 1 is.
  - -2 is as far away from 0 as 2 is.
  - $\ldots$ and so on.

Negative sign as a function

- The negative sign can be regarded as a function/operator:

Rule

$$-(a) = -a \qquad \text{if } a > 0$$

Example

$$-(5) = -5$$

- On the left, $-$ is regarded as a function that takes as input a positive number and produces an output that is a negative number.
- On the right, $-$ is regarded as a part of the notation for negative numbers.

Absolute value (magnitude) of a number

Definition (Magnitude of a number)

The magnitude or absolute value $|x|$ of a number x is defined as:

- The number itself, if the number is non-negative.

$$|a| = a, \qquad \text{if } a \text{ is non-negative.}$$

- The number with negative sign removed, if the number is negative.

$$|-a| = a, \qquad \text{if } a \text{ is negative.}$$

Example

$$\begin{aligned} |4| &= 4 \\ |-5| &= 5 \\ |0| &= 0 \end{aligned}$$

Negative of a negative

Rule

The negative of a negative of a number is the number itself.

$$-(-a) = a$$

- Parenthesis are necessary when using multiple negative signs.

Incorrect	Correct
~~$= a$~~	$-(-a)$

- The rule is independent of whether a is positive or negative.
- Can be applied consecutively for more than 2 negative signs.

Example

$$\begin{aligned} -(-5) &= 5 \\ -(-(-7)) &= -(7) = -7 \\ -(-(-(-1))) &= -(-1) = 1 \end{aligned}$$

Sum with a negative

Rule

Subtracting a number is the same as adding its negative.

$$\begin{aligned} a+(-b) &= a-b \\ -a+b &= b-a \end{aligned}$$

Example

$$\begin{aligned} 5+(-3) &= 5-3 &&= 2 \\ 10+(-5) &= 10-5 &&= 5 \\ -1+8 &= 8-1 &&= 7 \\ -8+14 &= 14-8 &&= 6 \end{aligned}$$

Negative of a sum

Rule

The sum of negatives is the negative of the sum.

$$-a-b=-(a+b)$$

The difference of two numbers is minus the opposite difference.

$$a-b=-(b-a)$$

Example

$$\begin{aligned}
-5-7 &= -(5+7) &&= -12 \\
-7+(-8) &= -7-8 &&= -(7+8) &&= -15 \\
5-9 &= -(9-5) &&= -4 \\
6-11 &= -(11-6) &&= -5 \\
-9+3 &= 3-9 &&= -(9-3) &&= -6
\end{aligned}$$

Summary of algebra rules involving subtraction

Rule

$$\begin{aligned} -(-a) &= a \\ a+(-b) &= a-b \\ -a+b &= b-a \\ -a-b &= -(a+b) \\ a-b &= -(b-a) \end{aligned}$$

Example

Find the number x so that: $5 + x = 9$. Solution:

$$\begin{array}{rcl|l} 5 + x & = & 9 & \text{transfer 5 to the right hand side} \\ x & = & 9 - 5 & \text{When transferred, 5 acquires negative sign} \\ x & = & 4 & \end{array}$$

Observation

At the price of a negative sign, one is allowed to transfer summands from one side of an equation to the other.

$$\begin{array}{rcl|l} a + b & = & c & \textit{transfer } a \textit{ to the right hand side} \\ b & = & c - a & \end{array}$$

Example

Solve the equation.

$$\begin{array}{rcll} 8 + x & = & 9 & \text{Answer: } x = 1 \\ 3 + t & = & 11 & \text{Answer: } t = 8 \\ 5 + a & = & 10 & \text{Answer: } a = 5 \\ 8 + s & = & 16 & \text{Answer: } s = 8 \end{array}$$

Example

Solve the equation.

$$7 + x = 2$$

Solution.

$$\begin{aligned} 7 + x &= 2 && \text{Transfer 7 to the other side} \\ x &= 2 - 7 = -5 \end{aligned}$$

Example

Solve the equation.

$$
\begin{array}{lcll}
3+x & = & 7 & \text{Answer: } x=4 \\
1+a & = & 10 & \text{Answer: } a=9 \\
3+x & = & 1 & \text{Answer: } x=-2 \\
5+x & = & 0 & \text{Answer: } x=-5 \\
9+a & = & 15 & \text{Answer: } a=6 \\
4+z & = & 13 & \text{Answer: } z=9 \\
9+x & = & 8 & \text{Answer: } x=-1 \\
9+x & = & 1 & \text{Answer: } x=-8
\end{array}
$$

Example

Find w, x, y, z so as to satisfy each equality below.

$$-4 = -10 + w$$

Solution

$$-4 = (-10 + 10) - 4 = -10 + (10 - 4) = -10 + 6 \Rightarrow w = 6$$

$$-2 = -10 + x$$

Solution

$$-2 = (-10 + 10) - 2 = -10 + (10 - 2) = -10 + 8 \Rightarrow x = 8$$

$$-1 = -10 + y$$

Solution

$$-1 = (-10 + 10) - 1 = -10 + (10 - 1) = -10 + 9 \Rightarrow y = 9$$

$$-9 = -10 + z$$

Solution

$$-9 = (-10 + 10) - 9 = -10 + (10 - 9) = -10 + 1 \Rightarrow z = 1$$

Subtract 5 from 71.

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$$\begin{array}{cc} 7 & 1 \\ & 5 \end{array}$$

Subtract 5 from 71.

$$\begin{array}{rr} 7 & 1 \\ & 5 \end{array}$$

Subtract 5 from 71.

$$\begin{array}{cc} 7 & 1 \\ & 5 \end{array}$$

- Ensure summand $>$ subtracand.

Subtract 5 from 71.

$$\begin{array}{rcc} & 7 & 1 \\ - & & 5 \\ \hline & & \end{array}$$

- Ensure summand $>$ subtracand.

Subtract 5 from 71.

$$\begin{array}{rr} & 7 \quad 1 \\ - & \quad 5 \\ \hline \end{array}$$

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$$1 - 5 = \textbf{?}$$

Subtract 5 from 71.

$$\begin{array}{rr} & 7 \quad 1 \\ - & \quad 5 \\ \hline \end{array}$$

- Ensure summand $>$ subtracand.

$$1 - 5 = -4$$

Subtract 5 from 71.

$$\begin{array}{rcl} & {\color{red}-1} & \\ & 7 & 1 \\ - & & 5 \\ \hline & & {\color{red}\mathbf{?}} \end{array}$$

- Ensure summand $>$ subtracand.

$$1 - 5 = {\color{red}-4 = -10 + \mathbf{?}}$$

Subtract 5 from 71.

$$\begin{array}{rcl} & {\scriptstyle -1} & \\ & 7 & 1 \\ - & & 5 \\ \hline & & 6 \end{array}$$

- Ensure summand $>$ subtracand.

$$1 - 5 = -4 = -10 + 6$$

Subtract 5 from 71.

$$\begin{array}{rrr} & {\scriptstyle -1} & \\ & 7 & 1 \\ - & & 5 \\ \hline & & 6 \end{array}$$

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$$1 - 5 = -4 = -10 + 6$$

Subtract 5 from 71.

$$\begin{array}{rcl} & {\color{red}-1} & \\ & 7 & 1 \\ - & & 5 \\ \hline & & 6 \end{array}$$

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$$1-5=-4=-10+6$$

Subtract 5 from 71.

$$\begin{array}{rcl} & -1 & \\ & 7 & 1 \\ - & & 5 \\ \hline & ? & 6 \end{array}$$

- Ensure summand $>$ subtracand.

$$1 - 5 = -4 = -10 + 6$$
$$-1 + 7 - 0 = ?$$

Subtract 5 from 71.

$$\begin{array}{rcc} & {\color{red}-1} & \\ & {\color{red}7} & 1 \\ - & & 5 \\ \hline & {\color{red}6} & 6 \end{array}$$

- Ensure summand $>$ subtracand.

$$1-5=-4=\color{red}-10\color{black}+6$$
$$\color{red}-1+7-0=6$$

Subtract 108 from 111.

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$$\begin{array}{ccc} 1 & 1 & 1 \\ 1 & 0 & 8 \end{array}$$

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Subtract 108 from 111.

$$\begin{array}{r} 1\quad 1\quad 1 \\ -\ 1\quad 0\quad 8 \\ \hline \end{array}$$

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$$1 - 8 = \textbf{?}$$

Subtract 108 from 111.

$$\begin{array}{rccc} & 1 & 1 & 1 \\ - & 1 & 0 & 8 \\ \hline \end{array}$$

- Ensure summand $>$ subtracand.

$$1 - 8 = -7$$

Subtract 108 from 111.

$$\begin{array}{rccc} & & -1 & \\ & 1 & 1 & 1 \\ - & 1 & 0 & 8 \\ \hline & & & ? \end{array}$$

- Ensure summand $>$ subtracand.

$$1 - 8 = -7 = -10 + ?$$

Subtract 108 from 111.

$$\begin{array}{rccc} & & -1 & \\ & 1 & 1 & 1 \\ - & 1 & 0 & 8 \\ \hline & & & 3 \end{array}$$

- Ensure summand $>$ subtracand.

$$1 - 8 = -7 = -10 + 3$$

Subtract 108 from 111.

$$\begin{array}{rccc} & & -1 & \\ & 1 & 1 & 1 \\ - & 1 & 0 & 8 \\ \hline & & & 3 \end{array}$$

- Ensure summand $>$ subtracand.

$$1 - 8 = -7 = -10 + 3$$

Subtract 108 from 111.

$$\begin{array}{rccc} & & -1 & \\ & 1 & 1 & 1 \\ - & 1 & 0 & 8 \\ \hline & & & 3 \end{array}$$

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$$1 - 8 = -7 = -10 + 3$$

Subtract 108 from 111.

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$$1-8=-7=-10+3$$
$$-1+1-0=?$$

Subtract 108 from 111.

$$\begin{array}{rccc} & & -1 & \\ & 1 & 1 & 1 \\ - & 1 & 0 & 8 \\ \hline & & 0 & 3 \end{array}$$

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$$1 - 8 = -7 = -10 + 3$$
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Compute $447 - 509$

When the subtracand is larger than the summand

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When the subtracand is larger than the summand, we first use the rule $a - b = -(b - a)$.
Compute $447 - 509 = -(509 - 447)$.

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$$\begin{array}{ccc} 5 & 0 & 9 \\ 4 & 4 & 7 \end{array}$$

When the subtracand is larger than the summand, we first use the rule $a - b = -(b - a)$.
Compute $447 - 509 = -(509 - 447)$.

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$$\begin{array}{rccc} & 5 & 0 & 9 \\ - & 4 & 4 & 7 \\ \hline & & & ? \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = ?$$

When the subtracand is larger than the summand, we first use the rule $a - b = -(b - a)$.
Compute $447 - 509 = -(509 - 447)$.

$$\begin{array}{rccc} & 5 & 0 & 9 \\ - & 4 & 4 & 7 \\ \hline & & & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$

When the subtracand is larger than the summand, we first use the rule $a - b = -(b - a)$.
Compute $447 - 509 = -(509 - 447)$.

$$\begin{array}{rccc} & 5 & 0 & 9 \\ - & 4 & 4 & 7 \\ \hline & & & 2 \end{array}$$

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$$0 - 4 = \textbf{?}$$

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- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$
$$0 - 4 = -4$$

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$$\begin{array}{rccc} & \color{red}{-1} & & \\ & 5 & 0 & 9 \\ - & 4 & 4 & 7 \\ \hline & & \color{red}{\mathbf{?}} & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$
$$0 - 4 = \color{red}{-4 = -10 + \mathbf{?}}$$

When the subtracand is larger than the summand, we first use the rule $a - b = -(b - a)$.
Compute $447 - 509 = -(509 - 447)$.

$$\begin{array}{rccc} & \color{red}{-1} & & \\ & 5 & 0 & 9 \\ - & 4 & 4 & 7 \\ \hline & & \color{red}{6} & 2 \end{array}$$

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$$\begin{aligned} 9 - 7 &= 2 \\ 0 - 4 &= -4 = -10 + 6 \\ -1 + 5 - 4 &= ? \end{aligned}$$

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- Remove leading zeroes.

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- Ensure summand $>$ subtracand.
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$$\begin{aligned} 9 - 7 &= 2 \\ 0 - 4 &= -4 = -10 + 6 \\ -1 + 5 - 4 &= 0 \end{aligned}$$

Subtract 1234567 from 20182019.

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

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

Subtract 1234567 from 20182019.

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

- Ensure summand $>$ subtracand.

Subtract 1234567 from 20182019.

$$\begin{array}{rccccccc} & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline \end{array}$$

- Ensure summand $>$ subtracand.

Subtract 1234567 from 20182019.

$$
\begin{array}{rcccccccc}
 & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\
- & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\
\hline
 & & & & & & & & & \textbf{?}
\end{array}
$$

- Ensure summand $>$ subtracand.

$$9 - 7 = \textbf{?}$$

Subtract 1234567 from 20182019.

$$\begin{array}{rccccccccc} & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & & & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$

Subtract 1234567 from 20182019.

$$\begin{array}{rccccccccc} & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$
$$1 - 6 = \mathbf{?}$$

Subtract 1234567 from 20182019.

$$\begin{array}{rccccccccc} & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$
$$1 - 6 = -5$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & & & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & ? & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$
$$1 - 6 = -5 = -10 + ?$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & & & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$
$$1 - 6 = -5 = -10 + 5$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$
$$1 - 6 = -5 = -10 + 5$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & & & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$9 - 7 = 2$$
$$1 - 6 = -5 = -10 + 5$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & & -1 & & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= \mathbf{?} \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & & -1 & & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & ? & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + ? \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \\ -1 + 2 - 4 &= \mathbf{?} \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \\ -1 + 2 - 4 &= -3 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & & & -1 & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & ? & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+? \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & & & -1 & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \\ -1 + 2 - 4 &= -3 = -10 + 7 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & -1 & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \\ -1 + 2 - 4 &= -3 = -10 + 7 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & -1 & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \\ -1 + 2 - 4 &= -3 = -10 + 7 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & -1 & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & ? & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= ? \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & -1 & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \\ -1 + 2 - 4 &= -3 = -10 + 7 \\ -1 + 8 - 3 &= 4 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & -1 & -1 & -1 & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= \textbf{?} \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & & & -1 & -1 & -1 & & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 & \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & 4 & 7 & 4 & 5 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & & -1 & & -1 & -1 & -1 & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & ? & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+? \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & & -1 & & -1 & -1 & -1 & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & -1 & & -1 & -1 & -1 & & \\ 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & & -1 & & -1 & -1 & -1 & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

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$$\begin{aligned} 9 - 7 &= 2 \\ 1 - 6 &= -5 = -10 + 5 \\ -1 + 0 - 5 &= -6 = -10 + 4 \\ -1 + 2 - 4 &= -3 = -10 + 7 \\ -1 + 8 - 3 &= 4 \\ 1 - 2 &= -1 = -10 + 9 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & & -1 & & -1 & -1 & -1 & & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 & \\ - & & 1 & 2 & 3 & 4 & 5 & 6 & 7 & \\ \hline & & & 9 & 4 & 7 & 4 & 5 & 2 & \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \\ -1+0-1 &= \mathbf{?} \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & -1 & & -1 & -1 & -1 & & \\ 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \\ -1+0-1 &= -2 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & -1 & -1 & & -1 & -1 & -1 & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & ? & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \\ -1+0-1 &= -2 = -10+? \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccccc} & -1 & -1 & & -1 & -1 & -1 & & & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & 8 & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \\ -1+0-1 &= -2 = -10+8 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & -1 & -1 & & -1 & -1 & -1 & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & & & 8 & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \\ -1+0-1 &= -2 = -10+8 \end{aligned}$$

Subtract 1234567 from 20182019.

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$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \\ -1+0-1 &= -2 = -10+8 \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & -1 & -1 & & -1 & -1 & -1 & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & ? & 8 & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \\ -1+0-1 &= -2 = -10+8 \\ -1+2-0 &= ? \end{aligned}$$

Subtract 1234567 from 20182019.

$$\begin{array}{cccccccc} & -1 & -1 & & -1 & -1 & -1 & \\ & 2 & 0 & 1 & 8 & 2 & 0 & 1 & 9 \\ - & & & 1 & 2 & 3 & 4 & 5 & 6 & 7 \\ \hline & 1 & 8 & 9 & 4 & 7 & 4 & 5 & 2 \end{array}$$

- Ensure summand $>$ subtracand.

$$\begin{aligned} 9-7 &= 2 \\ 1-6 &= -5 = -10+5 \\ -1+0-5 &= -6 = -10+4 \\ -1+2-4 &= -3 = -10+7 \\ -1+8-3 &= 4 \\ 1-2 &= -1 = -10+9 \\ -1+0-1 &= -2 = -10+8 \\ -1+2-0 &= 1 \end{aligned}$$