# ADDITION

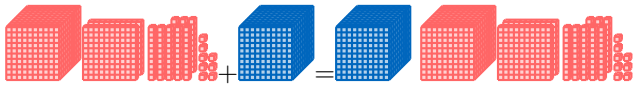
## A DEFINITION

### A.1 ADDING 1 000

**Ex 1:**

$$1\,288 + 1\,000 = \boxed{2288}$$

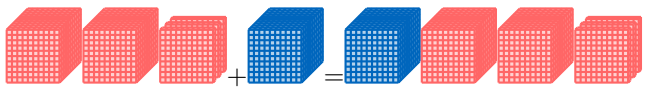
*Answer:*

- 
- $1\,288 + 1\,000 = 2\,388$

**Ex 2:**

$$2\,300 + 1\,000 = \boxed{3300}$$

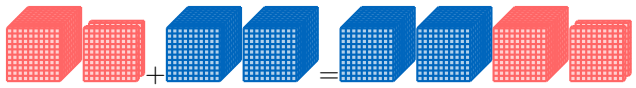
*Answer:*

- 
- $2\,300 + 1\,000 = 3\,300$

**Ex 3:**

$$1\,200 + 2\,000 = \boxed{3200}$$

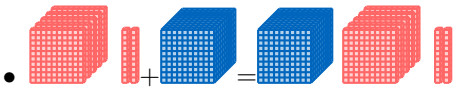
*Answer:*

- 
- $1\,200 + 2\,000 = 3\,200$

**Ex 4:**

$$520 + 1\,000 = \boxed{1\,520}$$

*Answer:*

- 
- $520 + 1\,000 = 1\,520$

## B ADDING USING COLUMNS

### B.1 ADDING NUMBERS UP TO 10 000

**Ex 5:** On your paper, set up a column addition:

$$2\,146 + 3\,155 = \boxed{5301}$$

*Answer:*

- Set up the addition:

$$\begin{array}{r} 2\,1\,4\,6 \\ +\,3\,1\,5\,5 \\ \hline \end{array}$$

- Add the ones: $6 + 5 = 11$ (1 carried to the tens column)

$$\begin{array}{r} {\scriptstyle 1\phantom{\,1\,1\,1}} \\ 2\,1\,4\,6 \\ +\,3\,1\,5\,5 \\ \hline 1 \end{array}$$

- Add the tens: $1 + 4 + 5 = 10$ (1 carried to the hundreds column)

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

- Add the hundreds: $1 + 1 + 1 = 3$

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

- Add the thousands: $2 + 3 = 5$

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

- So, $2\,146 + 3\,155 = 5\,301$

**Ex 6:** On your paper, set up a column addition:

$$1\,299 + 6\,975 = \boxed{8274}$$

*Answer:*

- Set up the addition:

$$\begin{array}{r} 1\,2\,9\,9 \\ +\,6\,9\,7\,5 \\ \hline \end{array}$$

- Add the ones: $9 + 5 = 14$ (1 carried to the tens column)

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

- Add the tens: $1 + 9 + 7 = 16$ (1 carried to the hundreds column)

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

- Add the hundreds: $1+2+9=12$ (1 carried to the thousands column)

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

- Add the thousands: $1+1+6=8$

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

- So, $1\,299+6\,975=8\,274$

**Ex 7:** On your paper, set up a column addition:

$$2\,305+407=\boxed{2712}$$

*Answer:*

- Set up the addition:

$$\begin{array}{r} 2\,3\,0\,5 \\ +\quad 4\,0\,7 \\ \hline \end{array}$$

- Add the ones: $5+7=12$ (1 carried to the tens column)

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

- Add the tens: $1+0+0=1$

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

- Add the hundreds: $3+4=7$

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

- Add the thousands: $2+0=2$

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

- So, $2\,305+407=2\,712$

**Ex 8:** On your paper, set up a column addition:

$$4\,055+97=\boxed{4152}$$

*Answer:*

- Set up the addition:

$$\begin{array}{r} 4\,0\,5\,5 \\ +\quad 9\,7 \\ \hline \end{array}$$

- Add the ones: $5+7=12$ (1 carried to the tens column)

$$\begin{array}{r} {\scriptstyle 1\ \ \ } \\ 4\,0\,5\,5 \\ +\quad 9\,7 \\ \hline 2 \end{array}$$

- Add the tens: $1+5+9=15$ (1 carried to the hundreds column)

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ } \\ 4\,0\,5\,5 \\ +\quad 9\,7 \\ \hline 5\,2 \end{array}$$

- Add the hundreds: $1+0+0=1$

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ } \\ 4\,0\,5\,5 \\ +\quad 9\,7 \\ \hline 1\,5\,2 \end{array}$$

- Add the thousands: $4+0=4$

$$\begin{array}{r} {\scriptstyle 1\ \ 1\ } \\ 4\,0\,5\,5 \\ +\quad 9\,7 \\ \hline 4\,1\,5\,2 \end{array}$$

- So, $4\,055+97=4\,152$

## B.2 ADDING NUMBERS UP TO 100 000

**Ex 9:** On your paper, set up a column addition:

$$33\,890+12\,180=\boxed{46070}$$

*Answer:*

- Set up the addition:

$$\begin{array}{r} 3\,3\,8\,9\,0 \\ +\,1\,2\,1\,8\,0 \\ \hline \end{array}$$

- Add the ones: $0+0=0$

$$\begin{array}{r} 3\,3\,8\,9\,0 \\ +\,1\,2\,1\,8\,0 \\ \hline 0 \end{array}$$

- Add the tens: $9+8=17$ (1 carried to the hundreds column)

$$\begin{array}{r} {\scriptstyle 1\phantom{\,0\,0\,0}} \\ 3\,3\,8\,9\,0 \\ +\,1\,2\,1\,8\,0 \\ \hline 7\,0 \end{array}$$

- Add the hundreds: $1+8+1=10$ (1 carried to the thousands column)

$$\begin{array}{r} {\scriptstyle 1\,1\phantom{\,0\,0}} \\ 3\,3\,8\,9\,0 \\ +\,1\,2\,1\,8\,0 \\ \hline 0\,7\,0 \end{array}$$

- Add the thousands: $1+3+2=6$

$$\begin{array}{r} {\scriptstyle 1\,1\phantom{\,0\,0}} \\ 3\,3\,8\,9\,0 \\ +\,1\,2\,1\,8\,0 \\ \hline 6\,0\,7\,0 \end{array}$$

- Add the ten thousands: $3+1=4$

$$\begin{array}{r} {\scriptstyle 1\,1\phantom{\,0\,0}} \\ 3\,3\,8\,9\,0 \\ +\,1\,2\,1\,8\,0 \\ \hline 4\,6\,0\,7\,0 \end{array}$$

- So, $33\,890+12\,180=46\,070$

**Ex 10:** On your paper, set up a column addition:

$$42\,146+23\,155=\boxed{65301}$$

*Answer:*

- Set up the addition:

$$\begin{array}{r} 4\,2\,1\,4\,6 \\ +\,2\,3\,1\,5\,5 \\ \hline \end{array}$$

- Add the ones: $6+5=11$ (1 carried to the tens column)

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

- Add the tens: $1+4+5=10$ (1 carried to the hundreds column)

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

- Add the hundreds: $1+1+1=3$

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

- Add the thousands: $2+3=5$

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

- Add the ten thousands: $4+2=6$

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

- So, $42\,146+23\,155=65\,301$

**Ex 11:** On your paper, set up a column addition:

$$8\,299+6\,975=\boxed{15274}$$

*Answer:*

- Set up the addition:

$$\begin{array}{r} 8\,2\,9\,9 \\ +\quad 6\,9\,7\,5 \\ \hline \end{array}$$

- Add the ones: $9+5=14$ (1 carried to the tens column)

$$\begin{array}{r} {\scriptstyle 1\phantom{\,0\,0\,0}} \\ 8\,2\,9\,9 \\ +\quad 6\,9\,7\,5 \\ \hline 4 \end{array}$$

- Add the tens: $1+9+7=16$ (1 carried to the hundreds column)

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

- Add the hundreds: $1+2+9=12$ (1 carried to the thousands column)

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

- Add the thousands: $1+8+6=15$

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

- So, $8\,299+6\,975=15\,274$

**Ex 12:** On your paper, set up a column addition:

$$34\,055+97=\boxed{34152}$$

*Answer:*

- Set up the addition:

$$\begin{array}{r} 3\,4\,0\,5\,5 \\ +\ \ \ \ \ 9\,7 \\ \hline \end{array}$$

- Add the ones: $5+7=12$ (1 carried to the tens column)

$$\begin{array}{r} {\scriptstyle \ \ \ \ \ 1\ } \\ 3\,4\,0\,5\,5 \\ +\ \ \ \ \ 9\,7 \\ \hline \ \ \ \ \ 2 \end{array}$$

- Add the tens: $1+5+9=15$ (1 carried to the hundreds column)

$$\begin{array}{r} {\scriptstyle \ \ \ 1\ 1\ } \\ 3\,4\,0\,5\,5 \\ +\ \ \ \ \ 9\,7 \\ \hline \ \ \ \ 5\,2 \end{array}$$

- Add the hundreds: $1+0+0=1$

$$\begin{array}{r} {\scriptstyle \ \ \ 1\ 1\ } \\ 3\,4\,0\,5\,5 \\ +\ \ \ \ \ 9\,7 \\ \hline \ \ \ 1\,5\,2 \end{array}$$

- Add the thousands: $4+0=4$

$$\begin{array}{r} {\scriptstyle \ \ 1\ 1\ \ } \\ 3\,4\,0\,5\,5 \\ +\ \ \ \ \ 9\,7 \\ \hline \ \ 4\,1\,5\,2 \end{array}$$

- Add the ten thousands: $3+0=3$

$$\begin{array}{r} {\scriptstyle \ \ 1\ 1\ \ } \\ 3\,4\,0\,5\,5 \\ +\ \ \ \ \ 9\,7 \\ \hline 3\,4\,1\,5\,2 \end{array}$$

- So, $34\,055+97=34\,152$

## B.3 SOLVING REAL-WORLD PROBLEMS

**Ex 13:** Emma collected 3 112 postcards, and her sister gave her 2 458 more.
How many postcards does Emma have in total?

$\boxed{5570}$ postcards

*Answer:*

- To find the total number of postcards, add the postcards Emma collected and those her sister gave her.
- The column addition is:

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

- The total number of postcards Emma has is $3112+2458=5570$.

**Ex 14:** In a car race, Car A traveled 18 432 kilometers, and Car B traveled 22 516 kilometers.
How many kilometers did they travel in total?

$\boxed{40948}$ kilometers

*Answer:*

- To find the total distance traveled, add the kilometers traveled by Car A and Car B.
- The column addition is:

$$\begin{array}{r} {\scriptstyle \ 1\ \ \ \ } \\ 1\,8\,4\,3\,2 \\ +\,2\,2\,5\,1\,6 \\ \hline 4\,0\,9\,4\,8 \end{array}$$

- The total distance traveled is $18432+22516=40948$.

**Ex 15:** A charity event collected 25 670 dollars on the first day and 34 859 dollars on the second day.
How much money was collected in total?

$\boxed{60529}$ dollars

*Answer:*

- To find the total amount collected, add the amounts from the first and second days.
- The column addition is:

$$\begin{array}{r} {\scriptstyle 1\ 1\ 1\ \ } \\ 2\,5\,6\,7\,0 \\ +\,3\,4\,8\,5\,9 \\ \hline 6\,0\,5\,2\,9 \end{array}$$

- The total amount collected is $25670+34859 = 60529$ dollars.

**Ex 16:** An orchard produced 43 215 apples and 21 638 pears this season.
How many fruits were harvested in total?

$\boxed{64853}$ fruits

*Answer:*

- To find the total number of fruits harvested, add the apples and pears produced.
- The column addition is:

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

- The total number of fruits harvested is $43215 + 21638 = 64853$ fruits.