

ADDITION

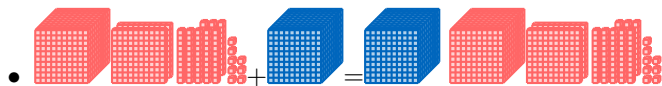
A DEFINITION

A.1 ADDING 1 000

Ex 1:

$$1\,288 + 1\,000 = \boxed{2\,288}$$

Answer:

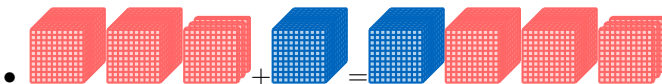


$$\bullet \quad 1\,288 + 1\,000 = 2\,388$$

Ex 2:

$$2\,300 + 1\,000 = \boxed{3\,300}$$

Answer:



$$\bullet \quad 2\,300 + 1\,000 = 3\,300$$

Ex 3:

$$1\,200 + 2\,000 = \boxed{3\,200}$$

Answer:



$$\bullet \quad 1\,200 + 2\,000 = 3\,200$$

Ex 4:

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

Answer:



$$\bullet \quad 520 + 1\,000 = 1\,520$$

B ADDING USING COLUMNS

B.1 ADDING NUMBERS UP TO 10 000

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

$$2\,146 + 3\,155 = \boxed{5\,301}$$

Answer:

- Set up the addition:

$$\begin{array}{r} 2\,146 \\ + 3\,155 \\ \hline \end{array}$$

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

$$\begin{array}{r} 1 \\ 2\,146 \\ + 3\,155 \\ \hline 1 \end{array}$$

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

$$\begin{array}{r} 1\,1 \\ 2\,146 \\ + 3\,155 \\ \hline 0\,1 \end{array}$$

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

$$\begin{array}{r} 1\,1 \\ 2\,146 \\ + 3\,155 \\ \hline 3\,0\,1 \end{array}$$

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

$$\begin{array}{r} 1\,1 \\ 2\,146 \\ + 3\,155 \\ \hline 5\,3\,0\,1 \end{array}$$

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

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

$$1\,299 + 6\,975 = \boxed{8\,274}$$

Answer:

- Set up the addition:

$$\begin{array}{r} 1\,299 \\ + 6\,975 \\ \hline \end{array}$$

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

$$\begin{array}{r} 1 \\ 1\,299 \\ + 6\,975 \\ \hline 4 \end{array}$$

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

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

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

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

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

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

- 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:

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

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

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

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

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

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

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

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

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

- 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:

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

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

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

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

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

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

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

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

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

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

B.2 ADDING NUMBERS UP TO 100 000

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

$$33\ 890 + 12\ 180 = \boxed{46\ 070}$$

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)

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

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

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

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

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

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

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

- 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)

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

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

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

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

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

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

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

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

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

- 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:

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

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

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

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

$$\begin{array}{r} \\ 8 \textcolor{red}{9} \\ + 6 \textcolor{red}{9} \textcolor{red}{7} \textcolor{red}{5} \\ \hline \textcolor{blue}{7} \textcolor{blue}{4} \end{array}$$

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

$$\begin{array}{r} \\ 8 \textcolor{red}{9} \\ + 6 \textcolor{red}{9} \textcolor{red}{7} \textcolor{red}{5} \\ \hline \textcolor{blue}{7} \textcolor{blue}{4} \end{array}$$

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

$$\begin{array}{r} \\ 8 \textcolor{red}{9} \\ + 6 \textcolor{red}{9} \textcolor{red}{7} \textcolor{red}{5} \\ \hline \textcolor{blue}{1} \textcolor{blue}{5} \textcolor{blue}{2} \textcolor{blue}{7} \textcolor{blue}{4} \end{array}$$

- So, $8299 + 6975 = 15274$

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

$$34055 + 97 = \boxed{34152}$$

Answer:

- Set up the addition:

$$\begin{array}{r} 3 \\ + \\ \hline \end{array}$$

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

$$\begin{array}{r} \\ 3 \textcolor{red}{5} \\ + \textcolor{red}{9} \textcolor{red}{7} \\ \hline \textcolor{blue}{2} \end{array}$$

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

$$\begin{array}{r} \\ 3 \textcolor{red}{5} \\ + \textcolor{red}{9} \textcolor{red}{7} \\ \hline \textcolor{blue}{5} \textcolor{blue}{2} \end{array}$$

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

$$\begin{array}{r} \\ 3 \textcolor{red}{0} \\ + \textcolor{red}{9} \textcolor{red}{7} \\ \hline \textcolor{blue}{1} \textcolor{blue}{5} \textcolor{blue}{2} \end{array}$$

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

$$\begin{array}{r} \\ 3 \\ + \\ \hline \textcolor{blue}{4} \textcolor{blue}{1} \textcolor{blue}{5} \textcolor{blue}{2} \end{array}$$

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

$$\begin{array}{r} \\ 3 \\ + \\ \hline \textcolor{blue}{3} \textcolor{blue}{4} \textcolor{blue}{1} \textcolor{blue}{5} \textcolor{blue}{2} \end{array}$$

- So, $34055 + 97 = 34152$

B.3 SOLVING REAL-WORLD PROBLEMS

Ex 13: Emma collected 3112 postcards, and her sister gave her 2458 more.

How many postcards does Emma have in total?

$$\boxed{5570} \text{ postcards}$$

Answer:

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

$$\begin{array}{r} \\ 3 \textcolor{red}{2} \\ + 2 \textcolor{blue}{4} \textcolor{blue}{5} \textcolor{blue}{8} \\ \hline \textcolor{blue}{5} \textcolor{blue}{5} \textcolor{blue}{7} \textcolor{blue}{0} \end{array}$$

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

Ex 14: In a car race, Car A traveled 18432 kilometers, and Car B traveled 22516 kilometers.

How many kilometers did they travel in total?

$$\boxed{40948} \text{ kilometers}$$

Answer:

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

$$\begin{array}{r} \\ 1 \textcolor{red}{8} \textcolor{red}{4} \textcolor{red}{3} \textcolor{red}{2} \\ + 2 \textcolor{blue}{2} \textcolor{blue}{5} \textcolor{blue}{1} \textcolor{blue}{6} \\ \hline \textcolor{blue}{4} \textcolor{blue}{0} \textcolor{blue}{9} \textcolor{blue}{4} \textcolor{blue}{8} \end{array}$$

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

Ex 15: A charity event collected 25670 dollars on the first day and 34859 dollars on the second day.

How much money was collected in total?

$$\boxed{60529} \text{ dollars}$$

Answer:

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

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

- 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?

64853 fruits

Answer:

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

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

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