

## SUBTRACTING BY COLUMNS (Reverse Addition)

**FACT 1:** To do reverse addition, write the smaller number at the top, set up space for difference underneath it, and place the larger number in the place of the sum.

Subtract 387 from 623:

$$\begin{array}{r}
 \begin{array}{r}
 3 \ 8 \ 7 \quad \text{Smaller number} \\
 + \boxed{\phantom{000}} \\
 \hline
 6 \ 2 \ 3 \quad \text{Larger number}
 \end{array}
 \xrightarrow{\hspace{1cm}}
 \begin{array}{r}
 1 \ 1 \\
 3 \ 8 \ 7 \\
 + \boxed{2 \ 3 \ 6} \quad \text{Difference} \\
 \hline
 6 \ 2 \ 3
 \end{array}
 \end{array}$$

- (a) For ONEs: Ask 7 plus **what** is “13” (not “3” because 3 is smaller than 7). Put down **6** in the difference.
- (b) For TENs: Carry over 1 from “13” to the next column. 1 and 8 are 9. Ask 9 plus **what** is “12”? Put down **3** in the difference.
- (c) For 100's: Carry over 1 to the next column. 1 and 3 are 4. Ask 4 plus **what** is “6”? Put down **2** in the difference.
- (d) The overall difference is **236**.

**FACT 2:** We may subtract large numbers through reverse addition as follows.

- (a) Subtract:  $4,001,030,352 - 1,946,327,115$ .

$$\begin{array}{r}
 \begin{array}{r}
 1, \ 9 \ 4 \ 6, \ 3 \ 2 \ 7, \ 1 \ 1 \ 5 \\
 + \boxed{\phantom{000000000000}} \\
 \hline
 4, \ 0 \ 0 \ 1, \ 0 \ 3 \ 0, \ 3 \ 5 \ 2
 \end{array}
 \quad \text{Difference} \quad
 \begin{array}{r}
 1 \ 1 \ 1 \ 1 \ 1 \ 1 \\
 1, \ 9 \ 4 \ 6, \ 3 \ 2 \ 7, \ 1 \ 1 \ 5 \\
 + \boxed{2, \ 0 \ 5 \ 4, \ 7 \ 0 \ 3, \ 2 \ 3 \ 7} \\
 \hline
 4, \ 0 \ 0 \ 1, \ 0 \ 3 \ 0, \ 3 \ 5 \ 2
 \end{array}
 \end{array}$$

Note that when there are several zeroes following each other in the larger number, there is no confusion of repeated regrouping as is the case with traditional method.

- (b) Subtract:  $5,082,359,777 - 3,193,461,857$ .

$$\begin{array}{r}
 \begin{array}{r}
 3, \ 1 \ 9 \ 3, \ 4 \ 6 \ 1, \ 8 \ 5 \ 7 \\
 + \boxed{\phantom{000000000000}} \\
 \hline
 5, \ 0 \ 8 \ 2, \ 3 \ 5 \ 9, \ 7 \ 7 \ 7
 \end{array}
 \quad \text{Difference} \quad
 \begin{array}{r}
 1 \ 1 \ 1 \ 1 \ 1 \ 1 \\
 3, \ 1 \ 9 \ 3, \ 4 \ 6 \ 1, \ 8 \ 5 \ 7 \\
 + \boxed{1, \ 8 \ 8 \ 8, \ 8 \ 9 \ 7, \ 9 \ 2 \ 0} \\
 \hline
 5, \ 0 \ 8 \ 2, \ 3 \ 5 \ 9, \ 7 \ 7 \ 7
 \end{array}
 \end{array}$$

**1. Subtract by “reverse addition”.** (*Check your answers using a calculator*)

(a)  $36,251 - 14,532$    (d)  $400,315 - 291,827$    (g)  $5,423,234,015 - 3,567,888,146$   
(b)  $30,000 - 24,762$    (e)  $549,321 - 485,789$    (h)  $9,876,543,210 - 6,012,345,678$   
(c)  $77,004 - 45,675$    (f)  $707,303 - 596,276$    (i)  $5,937,123,472 - 4,999,847,503$

**End of Lesson**