

ADDING BY COLUMNS

(The units of these numbers are assumed to be the same.)

FACT 1: Arrange the same place values in columns. Add the columns of digits starting from right. Rule of regrouping applies.

The sum of 13 and 32 is 45.

$$\begin{array}{r}
 \begin{array}{r}
 \text{tens} \\
 \text{ones}
 \end{array} \\
 \begin{array}{rr}
 1 & 3 \\
 + & 3 & 2 \\
 \hline
 4 & 5
 \end{array}
 \end{array}
 \begin{array}{l}
 \text{addend} \\
 \text{addend} \\
 \text{sum}
 \end{array}$$

(a) For ONES: 3 plus 2 equals 5 ONES;
 (b) For TENS: 1 plus 3 equals 4 TENS.
 (c) SUM: The sum is 45.

The sum of 53 and 29 is 82.

$$\begin{array}{r}
 \begin{array}{r}
 \text{1} \\
 \text{5} & 3 \\
 + & 2 & 9 \\
 \hline
 8 & 2
 \end{array}
 \end{array}
 \begin{array}{l}
 \text{carry-over} \\
 \text{addend} \\
 \text{addend} \\
 \text{sum}
 \end{array}$$

(a) For ONES: 3 plus 9 equals 12; put down 2 ONES and carry over 1 TEN;
 (b) For TENS: 1 carried over with 5, plus 2 equals 8 TENS.
 (c) SUM: The sum is 82.

The sum of 1637, 286 and 979 is

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

(a) For ONES: 7 plus 6 plus 9 equals 22; put down 2 ONES; carry over 2 TENS;
 (b) For TENS: 2 carried over with 3, plus 8 plus 7 equals 20 TENS; put down 0; carry over 2 HUNDREDS;
 (c) For HUNDREDS: 2 carried over with 6, plus 2 plus 9 equals 19 HUNDREDS; put down 9; carry over 1 THOUSAND;
 (d) For THOUSANDS: 1 carried over with 1 equals 2 THOUSANDS.

1. Add (Check your answers on a calculator).

$$\begin{array}{r}
 \begin{array}{r}
 \text{(a)} \\
 \begin{array}{r}
 5 & 4 \\
 + & 1 & 7 \\
 \hline
 \end{array}
 \end{array}
 \begin{array}{r}
 \text{(b)} \\
 \begin{array}{r}
 7 & 8 \\
 + & 4 \\
 \hline
 \end{array}
 \end{array}
 \begin{array}{r}
 \text{(c)} \\
 \begin{array}{r}
 7 & 5 \\
 + & 2 & 8 \\
 \hline
 \end{array}
 \end{array}
 \begin{array}{r}
 \text{(d)} \\
 \begin{array}{r}
 9 & 9 \\
 + & 3 & 1 \\
 \hline
 \end{array}
 \end{array}
 \begin{array}{r}
 \text{(e)} \\
 \begin{array}{r}
 4 & 5 \\
 + & 3 & 7 \\
 \hline
 \end{array}
 \end{array}
 \begin{array}{r}
 \text{(f)} \\
 \begin{array}{r}
 3 & 3 \\
 + & 4 & 7 \\
 \hline
 \end{array}
 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \begin{array}{r}
 \text{(a)} \\
 \begin{array}{r}
 2 & 7 & 7 & 3 \\
 2 & 7 & 8 \\
 + & 6 & 3 & 4 \\
 \hline
 \end{array}
 \end{array}
 \begin{array}{r}
 \text{(b)} \\
 \begin{array}{r}
 3 & 7 & 9 \\
 2 & 2 & 1 \\
 + & 5 & 7 & 3 \\
 \hline
 \end{array}
 \end{array}
 \begin{array}{r}
 \text{(c)} \\
 \begin{array}{r}
 7 & 5 & 9 & 5 & 3 & 3 \\
 3 & 6 & 2 & 8 & 1 & 1 \\
 + & 1 & 5 & 3 & 8 & 6 & 4 \\
 \hline
 \end{array}
 \end{array}
 \begin{array}{r}
 \text{(d)} \\
 \begin{array}{r}
 8 & 7 & 2 & 1 & 5 \\
 3 & 5 & 7 & 3 & 2 \\
 + & 5 & 6 & 3 & 7 \\
 \hline
 \end{array}
 \end{array}
 \end{array}$$

2. Fill in the blanks (Check your answers on a calculator).

$$(a) \begin{array}{r} \boxed{} & 2 & 2 & \boxed{} \\ 1 & \boxed{} & \boxed{} & 1 \\ \hline 3 & 4 & 8 & 9 \end{array}$$

$$(b) \begin{array}{r} 1 & 1 & 3 \\ 6 & \boxed{} & 4 \\ 1 & 4 & \boxed{} \\ \hline \boxed{} & 2 & 6 \\ \hline \boxed{} & 4 & 1 & 0 \end{array}$$

End of Lesson