

AN ESTIMATING MIND SET

1. Give non-computational situations in which students identify or supply a reasonable number. This type of work, shown in figure A, helps make students aware of what is sensible in various contexts and conditions them to look for reasonable answers when computing.

A) Circle the most sensible number.



1. A pair of school shoes costs –
\$2.50 \$25.00 \$250.00
2. A father, mother, and two children went to the movies one night.
They spent about –
\$1.50 \$12.00 \$40.00
3. Sandra carried some books to school. She carried about _____?
books.
5 50 100
4. Fill in an amount that makes sense.
I can do __ multiplication facts in one minute.
I am in school about _____ hours a week.
There are about __ students in my school.

A.77

[Source from: Estimation and Mental Computation-1986 Yearbook pages 29 - 30, National Council of Teachers of Mathematics]

2. Have students identify the number of digits the answer to specific computational examples should contain. This activity, which focuses on the size of the answer, is a quick and useful check for reasonableness. In the first example B, the sum must have three or four digits – and more likely three. The third example must have three or four digits, since two two-digit numbers are being multiplied.

B) Look at each problem. Don't estimate. Just decide how many digits there should be in the answer.



1. $241 + 87 + 539$ _____ digits

2. $4000 - 3257$ _____ digits

3. 42×39 _____ digits

4. 6×362 _____ digits

5. $4247 \div 9$ _____ digits

3. Present examples that have been solved, and have students quickly check to find unreasonable answers. Figure C shows a quiz that students are to check. Because the answers are displayed, the sole focus is to check for the reasonableness of the answers. A useful variation is giving computational examples with the answers displayed on drawings of calculator windows.

C) Pick out the answers that don't make sense.

MATH CHECK-UP QUIZ Name Susie

1. $\begin{array}{r} 249 \\ 27 \\ +416 \\ \hline 692 \end{array}$	2. $\begin{array}{r} 4663 \\ - 167 \\ \hline 4496 \end{array}$	3. $\begin{array}{r} 98 \\ \times 24 \\ \hline 23502 \end{array}$
4. $5 \overline{) 95} \quad 475$	5. $\begin{array}{r} 247 \\ \times 6 \\ \hline 1482 \end{array}$	6. $6 \overline{) 1320} \quad 22$
7. $6157 + 700 + 3478 = 16\ 635$		

[Source from: Estimation and Mental Computation-1986 Yearbook pages 29 - 30, National Council of Teachers of Mathematics]