

Computation Strategies in Sixth Grade

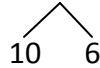


Although children in sixth grade review multiplication and division strategies, the work in sixth grade shifts from whole number computation to demonstrating an understanding of computation with fractions and decimals. Computation work continues to focus on mastery of two efficient, accurate, multi-digit algorithms for addition, subtraction, multiplication and division.

Multi Digit Multiplication Strategies

Breaking numbers apart: 16×12

$$\begin{aligned} 10 \times 12 &= 120 \\ 6 \times 12 &= 72 \\ 120 + 72 &= 192 \end{aligned}$$



Partial Products: 16×12

$$\begin{array}{r} 16 \\ \times 12 \\ \hline 12 \quad (2 \times 6) \\ 20 \quad (2 \times 10) \\ 60 \quad (10 \times 6) \\ \underline{100} \quad (10 \times 10) \\ 192 \end{array}$$

Breaking apart one number into landmark numbers that are easier to multiply: 58×6

$$\begin{aligned} 58 \times 6 &= (50 + 8) \times 6 \\ (50 + 8) \times 6 &= (50 \times 6) + (8 \times 6) \\ 300 + 48 &= 348 \end{aligned}$$

Round up and adjusting: 58×6

$$\begin{aligned} 58 \times 6 &= (60 \times 6) - (2 \times 6) \\ 360 - 12 &= 348 \end{aligned}$$

Rounding down and adjusting: 104×31

$$\begin{aligned} 104 \times 31 &= (100 \times 31) + (4 \times 31) \\ 3100 + 124 &= 3224 \end{aligned}$$

Multi Digit Division Strategies

Partial Quotients: $83 \div 6$

$$\begin{array}{r} 6 \overline{)83} \\ \underline{60} = 10 \times 6 \\ 23 \quad \text{How many more 6's in 23?} \\ \underline{18} = 3 \times 6 \\ 5 \quad \text{There are 13 6's in 83 remainder 5} \end{array}$$

Big Seven Division

$$\begin{array}{r} 32 \overline{)837} \quad 20 \\ \underline{640} \\ 197 \quad 5 \\ \underline{160} \\ 37 \quad 1 \\ \underline{32} \\ 5 \quad 26 \text{ remainder } 5 \end{array}$$

Sixth Grade Computational Fluency

Sixth grade students continue practice with multiplication and division facts. By the end of sixth grade, students will be fluent with two efficient, accurate algorithms for multi-digit addition, subtraction, multiplication and division—one of which may be the traditional algorithm.