Summary of Decimal and Fraction Skills

Important Note: Keep in mind that everything on this summary sheet is essentially the short-cut for the process. Don't just teach these topics to your students as "Blind Procedures"! Do your best to find ways to lead the students to somewhat of a discovery of the short-cut, and make sure they understand the math behind the procedure.

Decimals

- *Addition*: Line up the decimal points, then do the calculation.

  Example: 78.3 + 1.58 **Solution:**
  $$\begin{array}{r} 78.3 \\ +\ 1.58 \\ \hline 79.88 \end{array}$$

- *Subtraction*: Line up the decimal points, then do the calculation.

  Example: 57.4 – 4.23 **Solution:**
  $$\begin{array}{r} 57.40 \\ -\ 4.23 \\ \hline 53.17 \end{array}$$
  (don't forget to add the extra zero!)

- *Multiplication*: First do the calculation ignoring the decimals. Add up the number of decimal places in the original problem, and move over the answer's decimal point by that many places.

  Example: 0.2 x 0.03 (Note that between these two numbers there are a total of three digits to the right of the decimal place.)

  Solution: 2 x 3 is 6. We move the decimal 3 places to get 0.006

  Example: 78.3 x 1.58 (Note that between these two numbers there are a total of three digits to the right of the decimal place.)

  Solution: 783 x 158 is 123,714. We move the decimal 3 places to get 123.714

  Example: 12.34 x 7.042 (Note that between these two numbers there are a total of five digits to the right of the decimal place.)

  Solution: 1234 x 7042 is 8,689,828. We move the decimal 5 places to get 86.89828

- *Division (for 6th grade)*: Make the divisor (the second number, which goes outside the "house") easier by moving the decimal.

  Example: With 360 ÷ 0.009 we change the problem to 360,000÷9 (ans: 40,000)

  Example: With 5400 ÷ 6000 we change the problem to 5.4 ÷ 6 (ans: 0.9)

Feeling weak with your Fraction and Decimal Skills? If you are teaching 4th or 5th grade, it would be good to work through our 6th grade workbook in the coming months, well before you enter 6th grade. This will increase your confidence in your own math skills, and give you a clear sense (in terms of math skills) of where your class needs to be by the end of 6th grade.

(See next page for the Summary of Fraction Skills →)

Fractions

- *Addition & Subtraction*: Get a common denominator first.

  Example: $\frac{5}{12} + \frac{1}{3}$

  Solution: $\frac{5}{12} + \frac{1x4}{3x4} \rightarrow \frac{5}{12} + \frac{4}{12} \rightarrow \frac{9}{12} \rightarrow \frac{3}{4}$

  Example: $\frac{4}{5} - \frac{2}{7}$

  Solution: $\frac{4x7}{5x7} - \frac{2x5}{7x5} \rightarrow \frac{28}{35} - \frac{10}{35} \rightarrow \frac{18}{35}$

- *Multiplication*: Try first to cross cancel, then multiply denominators and numerators.

  Example: $\frac{6}{25}$ x $\frac{7}{8}$

  Solution: $\frac{6}{25}$ x $\frac{7}{8} \rightarrow \frac{3\cancel{6}}{25}$ x $\frac{7}{\cancel{8}4} \rightarrow \frac{21}{100}$

- *Division*: Flip the second one and then multiply the two fractions.

  Example: $\frac{4}{15} \div \frac{12}{25}$

  Solution: $\frac{4}{15} \div \frac{12}{25} \rightarrow \frac{4}{15}$ x $\frac{25}{12} \rightarrow \frac{1\cancel{4}}{3\cancel{15}}$ x $\frac{\cancel{25}5}{\cancel{12}3} \rightarrow \frac{5}{9}$

Mixed numbers

- *Multiplication & Division*: First, convert the mixed numbers into improper fractions.

  Example: 4⅔ x 3¾

  Solution: $\frac{14}{3}$ x $\frac{15}{4} \rightarrow \frac{14}{3}$ x $\frac{15}{4} \rightarrow \frac{35}{2} \rightarrow$ 17½

- *Addition & Subtraction*: It's usually easier to leave them as mixed numbers.

  Example: 26⅓ – 24¾ (This is the hardest kind of problem!)

  Solution: $26\frac{4}{12} - 24\frac{9}{12}$ → (borrow $\frac{12}{12}$ from the 26) → $25\frac{16}{12} - 24\frac{9}{12} \rightarrow 1\frac{7}{12}$