

Fraction Operations Quick Cheat Sheet

Addition

- ☐ Make common denominators.
- ☐ Rewrite the numerators.
- ☐ Add the numerators.
- ☐ Keep the denominator.
- ☐ Simplify or rewrite as a mixed number.

Example:

$$\begin{array}{r} \frac{2}{5} + 1\frac{1}{3} = \\ \frac{6}{15} + 1\frac{5}{15} = \\ 1\frac{11}{15} \end{array}$$

Subtraction

- ☐ Make common denominators.
- ☐ Rewrite the numerators.
- ☐ Add the numerators.
- ☐ Keep the denominator.
- ☐ Simplify or rewrite as a mixed number.

Example:

$$\begin{array}{r} 3\frac{4}{9} - 1\frac{2}{7} = \\ 3\frac{28}{63} - 1\frac{18}{63} = \\ 2\frac{10}{63} \end{array}$$

Multiplication

- ☐ Rewrite any mixed numbers as improper fractions.
- ☐ Multiply the numerators.
- ☐ Multiply the denominators.
- ☐ Simplify or rewrite as a mixed number.

Example:

$$\begin{array}{r} \frac{6}{11} \times 1\frac{1}{3} = \\ \frac{6}{11} \times \frac{4}{3} = \\ \frac{24}{33} = \frac{8}{11} \end{array}$$

Division

- ☐ Rewrite any mixed numbers as improper fractions.
- ☐ Keep, Change, Flip.
- ☐ Multiply the numerators.
- ☐ Multiply the denominators.
- ☐ Simplify or rewrite as a mixed number.

Example:

$$\begin{array}{r} \frac{1}{5} \times 3\frac{2}{3} = \\ \frac{1}{5} \times \frac{11}{3} = \\ \frac{1}{5} \times \frac{3}{11} = \\ \frac{3}{55} \end{array}$$

Mixed to Improper

- Multiply the denominator by the whole number.
- Add the numerator to this product to find your new numerator.
- Keep the denominator the same.

Example:

$$2\frac{1}{4} = \frac{9}{4}$$

Improper to Mixed

- Divide the numerator by the denominator until you have a remainder.
- The whole number in the quotient is the whole number in the answer.
- The remainder is the numerator.
- The denominator stays the same.

Example:

$$\frac{9}{4} = 4\overline{)9} \begin{array}{l} 2 \text{ r} 1 \end{array} = 2\frac{1}{4}$$

Decimal Operations Quick Cheat Sheet

Addition

- ☐ Line up the decimals. (If you have a whole number, make sure the decimal is after the number.)
- ☐ Add.
- ☐ Bring the decimal down to the answer.

Example:

$$13 + 0.2 + 1.92 = \underline{\hspace{2cm}}$$

$$\begin{array}{r} 13.00 \\ 0.20 \\ + 1.92 \\ \hline 15.12 \end{array}$$

Subtraction

- ☐ Line up the decimals. (If you have a whole number, make sure the decimal is after the number.)
- ☐ Add zeros where necessary.
- ☐ Subtract.
- ☐ Bring the decimal down to the answer.

Example:

$$12.4 - 5.981 = \underline{\hspace{2cm}}$$

$$\begin{array}{r} 12.400 \\ - 5.981 \\ \hline 6.419 \end{array}$$

Multiplication

- ☐ You do not have to line up the decimals.
- ☐ Multiply normally (ignore the decimal).
- ☐ Count the number of places after the decimal in the problem. Put the same number of decimal places in the answer.

Example:

$$3.1 \times .19 = \underline{\hspace{2cm}}$$

$$\begin{array}{r} 3.1 \\ \times .19 \\ \hline 279 \\ + 310 \\ \hline 0.589 \end{array}$$

Division

Decimal by Whole –

- ☐ Bring the decimal straight up.
- ☐ Divide normally.

Decimal by Decimal –

- ☐ Move the decimal in the divisor to the end. Move the same number of places in the dividend.
- ☐ Bring the decimal straight up.
- ☐ Divide normally.

Example:

$$8.2 \div 0.2 = \underline{\hspace{2cm}}$$

$$\begin{array}{r} 0.2 \overline{)8.2} = \\ 02 \overline{)82} = \\ 41. \\ 02 \overline{)82} \end{array}$$