# Fractions Memory Aid

1. Converting a Fraction to a decimal

i.e $\frac{5}{8} = 5 \div 8$ so

$$8\overline{)5.000} = 0.625$$

$$\begin{array}{r} 0 \\ \hline 50 \\ 48 \\ \hline 20 \\ 16 \\ \hline 40 \\ 40 \\ \hline 0 \end{array}$$

2. Changing a mixed number to an Improper fraction

$2\frac{4}{6} = 2 \times 6 = 12 + 4 = \frac{16}{6}$

3. changing an improper fraction to a Mixed Number

$\frac{16}{6} = 16 \div 6 = 6\overline{)16} = 2\frac{4}{6}$

2 = (whole #), 12, 4 = remainder (numerator), denominator

4. Comparing Fractions : order from smallest → largest

i.e $\frac{5}{6}, \frac{9}{12}, \frac{2}{3}, \frac{4}{5}, \frac{22}{30}$

1) change to common denominator: $\frac{50}{60}, \frac{45}{60}, \frac{40}{60}, \frac{48}{60}, \frac{44}{60}$

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2) Reorder $\frac{2}{3}, \frac{22}{30}, \frac{9}{12}, \frac{4}{5}, \frac{5}{6}$

# Operations on Fractions

| | Rule | Example 1 | Example 2 |
|---|---|---|---|
| + | 1) Find a common denominator (LCD) for the fractions<br>2) Rename fractions<br>3) Add numerators only<br>4) Reduce if possible | $2\frac{3}{5} + 6\frac{4}{5}$<br>$= 8\frac{7}{5}$<br>$= 9\frac{2}{5}$ | $8\frac{2}{3} + 7\frac{1}{6}$<br>$= 8\frac{4}{6} + 7\frac{1}{6}$<br>$= 15\frac{5}{6}$ |
| − | 1) Find a common denominator (LCD)<br>2) Rename fractions over the LCD<br>3) subtract numerators only<br>4) Reduce if possible<br>* put mixed into improper 1st before starting | $\frac{2}{3} - \frac{1}{5}$<br>$\frac{10}{15} - \frac{3}{15}$<br>$\frac{7}{15}$ | $4\frac{3}{10} - 2\frac{1}{2}$<br>$= \frac{43}{10} - \frac{5}{2}$<br>$= \frac{43}{10} - \frac{25}{10}$<br>$= \frac{18}{10} = 1\frac{8}{10} = 1\frac{4}{5}$ |
| × * turn mixed into improper + make all numbers fractions First | 1) multiply numerator by numerator<br>2) multiply denominator by denominator<br>3) reduce<br>* check to cross reduce before starting | $\frac{4}{5} \times \frac{15}{16}$ or $\frac{\cancel{4}^{1}}{5} \times \frac{\cancel{15}^{3}}{\cancel{16}_{4}}$<br>$= \frac{60}{80}$<br>$= \frac{3}{4}$<br>$= \frac{1}{1} \times \frac{3}{4}$<br>$= \frac{3}{4}$ | $2\frac{1}{2} \times 3\frac{2}{5}$<br>$= \frac{5}{2} \times \frac{17}{5}$ or $\frac{\cancel{5}^{1}}{2} \times \frac{17}{\cancel{5}_{1}}$<br>$= \frac{85}{10}$<br>$= 8\frac{5}{10} = 8\frac{1}{2}$<br>$\frac{17}{2} = 8\frac{1}{2}$ |
| ÷ * turn mixed into improper & turn ∥ number to fractions First | 1) KCF (Keep Change Flip)<br>2) multiply fractions as above. | $\frac{6}{7} \div \frac{9}{14}$ (K C F)<br>$\frac{\cancel{6}^{2}}{7_{1}} \times \frac{14^{2}}{\cancel{9}_{3}}$<br>$\frac{2}{1} \times \frac{2}{3}$<br>$= \frac{4}{3} = 1\frac{1}{3}$ | $4\frac{1}{2} \div 5\frac{1}{4}$<br>$= \frac{9}{2} \div \frac{21}{4}$<br>$= \frac{\cancel{9}^{3}}{2} \times \frac{4^{2}}{\cancel{21}_{7}}$<br>$= \frac{3}{1} \times \frac{2}{7}$<br>$= \frac{6}{7}$ |
| Exponents | multiply fraction by itself the number of times to match the exponent | $\left(\frac{1}{3}\right)^2 = \frac{1}{3} \times \frac{1}{3}$<br>$= \frac{1}{9}$ | $\left(\frac{1}{2}\right)^3 = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$<br>$= \frac{1}{8}$ |