DIVIDING FRACTIONS

DIVISION: BREAKING INTO EQUAL GROUPS

RECIPROCAL → THE MULTIPLIER OF A NUMBER THAT EQUALS A PRODUCT of 1.

→ RECIPROCAL of A FRACTION: $\frac{4}{5}$ $\frac{5}{4}$ WHY? $\frac{1}{5} \times \frac{5}{4} = \frac{20}{20} = 1$

THE RULES

1. CHANGE MIXED to IMPROPER
2. LEAVE first FRACTION
3. CHANGE ÷ to x
4. RECIPROCAL 2ND FRACTION
5. MULTIPLY

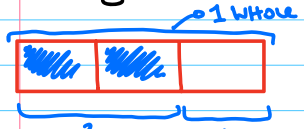
KISS & FLIP

EX: $\frac{2}{3} \div \frac{1}{6} \rightarrow \frac{2}{3} \times \frac{6}{1} \rightarrow \frac{12}{3} = 4$

RECIPROCAL

WHY THE RECIPROCAL?

$1 \div \frac{2}{3}$ → HOW MANY GROUPS of $\frac{2}{3}$ CAN I MAKE FROM 1?



HALF of $\frac{2}{3}$

1 full GROUP of $\frac{2}{3}$

$1 \div \frac{2}{3} = 1\frac{1}{2}$

LET'S CHECK THIS WITH OUR ALGORITHM

$= 1 \div \frac{2}{3}$

$= \frac{1}{1} \div \frac{2}{3}$

$= \frac{1}{1} \times \frac{3}{2}$

$= \frac{3}{2} = 1\frac{1}{2}$ ✓

BUT WAIT... THERE'S MORE! IF YOU DIVIDE A FRACTION BY A WHOLE NUMBER, CONVERT it to AN IMPROPER FRACTION FIRST.

$\frac{4}{3} \div 3 \rightarrow \frac{4}{3} \div \frac{3}{1}$

$\frac{5}{7} \div 3\frac{1}{2}$

$= \frac{5}{7} \div \frac{(3\times2)+1}{2}$

$= \frac{5}{7} \div \frac{7}{2}$

$= \frac{5}{7} \times \frac{2}{7} = \boxed{\frac{10}{49}}$

$\frac{9}{4} \div \frac{5}{2}$

$= \frac{9}{4} \times \frac{2}{5}$

$= \frac{18}{20}$

$= \boxed{\frac{9}{10}}$