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? $\frac{4}{5} \times \frac{5}{4} = \frac{20}{20} = 1$

THE RULES

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

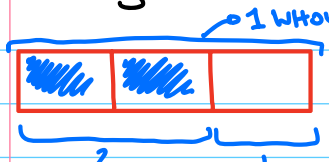
KISS (×) & FLIP ($\frac{1}{1}$ ↔)

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

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

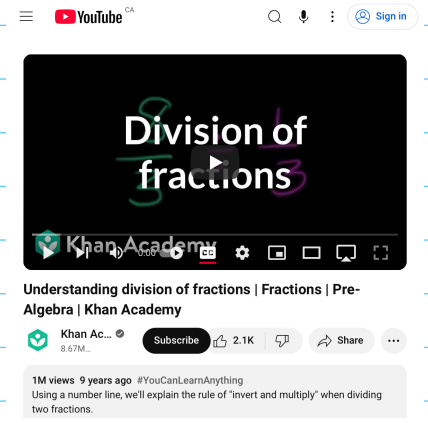
$= \frac{1}{1} \div \frac{2}{3}$

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

$= \frac{3}{2} = 1\frac{1}{2}$ ✓

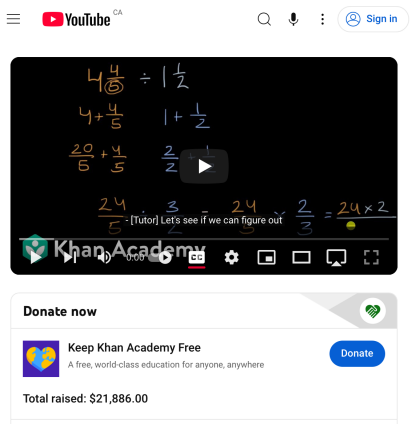
BUT WAIT... THERE'S MORE! IF YOU DIVIDE A FRACTION BY A WHOLE NUMBER, CONVERT IT TO AN IMPROPER FRACTION FIRST.

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



https://www.youtube.com/watch?v=f3ySpxX9oeM

DIVIDING FRACTIONS



https://www.youtube.com/watch?v=tj5AtYoKqvs

DIVIDING MIXED NUMBERS

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

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

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

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

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

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

$$= \frac{18}{20}$$

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