Date:_____

KEY

6.5 Notes: Dividing Fractions

There are two methods for dividing fractions:

Method 1: Common Denominator ← NOT RECOMMENDED.

Write the fractions with a COMMON DENOMINATOR and divide the NUMERATORS.

Eg

$\frac{7}{8} \div \frac{3}{8} = \frac{7}{3}$

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

$\frac{13}{5} \div \frac{4}{3} = \frac{39}{15} \div \frac{20}{15}$

$= \frac{39}{20}$

$= \boxed{1\frac{19}{20}}$

$\frac{4}{5} \div \frac{1}{2} = \frac{8}{10} \div \frac{5}{10}$

$= \frac{8}{5}$

$= \boxed{1\frac{3}{5}}$

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

$= \frac{21}{6} \div \frac{10}{6}$

$= \frac{21}{10}$

$= \boxed{2\frac{1}{10}}$

THIS METHOD IS NOT RECOMMENDED.

Can $\frac{2}{3} \times \frac{5}{7}$ be changed into a division question?

$\frac{2}{3} \times \frac{5}{7}$

IS THE SAME AS:

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

Method 2: Divide Using a Multiplication

(*) RECOMMENDED

To divide a fraction, you can also MULTIPLY by its RECIPROCAL

Eg

$\frac{7}{8} \div \frac{3}{8} = \frac{7}{8} \times \frac{8}{3}$ CROSS CANCEL $= \frac{7}{3}$ $= \boxed{2\frac{1}{3}}$

$\frac{13}{5} \div \frac{4}{3} = \frac{13}{5} \times \frac{3}{4} = \frac{39}{20}$ $= \boxed{1\frac{19}{20}}$

$\frac{4}{5} \div \frac{1}{2} = \frac{4}{5} \times \frac{2}{1} = \frac{8}{5}$ $= \boxed{1\frac{3}{5}}$

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

$= \frac{7}{2} \times \frac{3}{5}$

$= \frac{21}{10}$

$= \boxed{2\frac{1}{10}}$

Reciprocal

(*) THE NUMBER FOUND BY "FLIPPING" A FRACTION.

Ex: THE RECIPROCAL OF $\frac{7}{2}$ IS $\frac{2}{7}$

(*) FOR A WHOLE NUMBER, WRITE IT AS A FRACTION FIRST.

Ex THE RECIPROCAL OF 3 IS THE RECIPROCAL OF $\frac{3}{1}$ WHICH IS $\frac{1}{3}$

Eg. Jorge has a very rare Yu-Gi-Oh card worth $\$5\frac{1}{2}$. This is $\frac{3}{4}$ of the original price he paid for it. What price was it when he bought it?

↳ x

THINK!

$\frac{3}{4}$ of x IS $\$5\frac{1}{2}$

HOW CAN YOU FIND x?

$\frac{3}{4} \times x = 5\frac{1}{2}$

SO....

$5\frac{1}{2} \div \frac{3}{4} = x$

$x = 5\frac{1}{2} \div \frac{3}{4}$

$= \frac{11}{2} \times \frac{4}{3}$

CROSS CANCEL

$= \frac{11}{1} \times \frac{2}{3}$

$= \frac{22}{3}$

$x = \$7\frac{1}{3}$