Alg 1

Warm-up: Work on your own. We will share after.

Write the problem in your notebook. State if it is True or False

1. $3\frac{2}{3} = \frac{9}{3}$

F $\frac{11}{3}$

2. $\frac{15}{12} = \frac{5}{4} \cdot \frac{3}{3}$

T

3. $\frac{\ominus 3}{\ominus 4} = -\frac{3}{4}$

F $+\frac{3}{4}$

4. $\frac{3}{-1} = \frac{-3}{1}$

T

or $-\frac{3}{1}$

5. The reciprocal of $-\frac{1}{3}$ is -3.

T $-\frac{3}{1}$

Multiplying and Dividing Fractions

Write in simpliest form.

Example $\frac{2}{3} \cdot \frac{-6}{3}$ or $\left(\frac{2}{3}\right)\left(\frac{-6}{3}\right)$

↙ Two options ↘

$\frac{2 \cdot (-6)}{3 \cdot (3)}$

Multiply and then simplify

$\frac{-12}{9}$

divide by 3 in the numerator & denominator

$\frac{-4}{3}$

$\frac{2 (-\cancel{6}^{2})}{\cancel{3}_{1}(\cancel{3})}$

$\frac{-4}{3}$

Simplify and then multiply

Example

$\frac{2}{3} \cdot \frac{1}{5} = \frac{2}{15}$ no simplification

Example

$\left(\frac{-4}{9}\right)\left(\frac{-3}{2}\right)$ → simplify

OR → simplify $\left(-\frac{\cancel{4}^{2}}{\cancel{9}_{3}}\right)\left(-\frac{\cancel{3}^{1}}{\cancel{2}_{1}}\right)$

$\frac{12}{18}$ simplify

$\frac{2}{3}$

$\frac{2}{3}$

When dividing, we multiply with the reciprocal of the second fraction.

Reciprocals

Do not change the sign.

$\frac{2}{3}$ $\frac{3}{2}$

$\frac{-1}{5}$ $\frac{5}{-4}$ or $\frac{-4}{5}$

2 $\frac{1}{2}$

$$\frac{2}{3} \div \frac{4}{12}$$

multiply by the reciprocal of the second fraction

$$\frac{\cancel{2}^{1}}{\cancel{3}_{1}} \cdot \frac{\cancel{12}^{4}}{\cancel{4}_{2}}$$

$$\frac{4}{2} \rightarrow \boxed{2}$$

$$\frac{2}{\cancel{3}} \cdot \frac{\cancel{3}}{1}$$

$$\boxed{2}$$

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

$$-\frac{1}{3} \cdot \frac{2}{-5}$$

$$\frac{-2}{-15} \quad \boxed{\frac{2}{15}}$$

When given mixed numbers, they must be changed to fractions when multiplying and dividing.

$2\frac{1}{2} \div \frac{3}{4}$

$\frac{5}{2} \div \frac{3}{4}$

$\frac{5}{\cancel{2}_{1}} \cdot \frac{\cancel{4}^{2}}{3}$

$\frac{10}{3}$ or $\frac{20}{6}$

$\frac{10}{3}$