

Mathematics 9

Section 3.4 - Multiplying Rational Numbers

Next we are going to look at multiplying fractions when negatives are involved.

We need to remember the rules governing how we deal with positive and negative numbers.

We also need to look for possible SIMPLIFICATION steps before we actually combine any rational number fractions.

Suppose we have:

$$\frac{4}{5} \times \frac{5}{12}$$

Step 1: LOOK FOR A SHARED FACTOR IN THE NUMERATORS & DENOMINATORS.

$$\frac{4}{5} \times \frac{5}{12}$$

4 and 12 share a common factor of 4, divide both by 4 and rewrite the reduced fractions.

$$\frac{4 \div 4}{5} \times \frac{5}{12 \div 4} = \frac{1}{5} \times \frac{5 \div 5}{3}$$

Divide out the common factor of 5

Step 2:

Multiply the two fractions

$$\frac{1}{3}$$

Suppose we have:

$$\left(2\frac{2}{3}\right)\left(-1\frac{3}{4}\right)$$

Step 1: CONVERT MIXED FRACTIONS TO IMPROPER FRACTIONS

$$\left(\frac{8}{3}\right)\left(-\frac{7}{4}\right)$$

Step 2: SIMPLIFY IF YOU CAN

$$\left(\frac{8 \div 4}{3}\right)\left(-\frac{7}{4 \div 4}\right)$$

$$= \left(\frac{2}{3}\right)\left(-\frac{7}{1}\right)$$

Step 3: MULTIPLY

$$\begin{aligned} & \frac{-14}{3} \\ & = -4\frac{2}{3} \end{aligned}$$

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