

Lesson 5: Dividing Fractions

Goals:

- Divide fractions by using the reciprocal of the divisor.
- Simplify final answers.

The following box reviews the rules we follow when dividing signed numbers. These rules apply to all types of numbers, including fractions.

- Dividing numbers with the **same sign** results in the product being **POSITIVE**.
- Dividing numbers that have **different signs** results in the product being **NEGATIVE**.

Example 1

To divide fractions, we turn the second fraction into its reciprocal ("flip it") and then multiply the fractions.

$$\begin{aligned} \text{a) } & \frac{3}{4} \div \frac{2}{5} \\ & = \frac{3}{4} \times \frac{5}{2} = \boxed{\frac{15}{8}} \end{aligned}$$

$$\begin{aligned} \text{b) } & \frac{1}{4} \div \frac{3}{4} = \frac{1}{4} \times \frac{4}{3} = \frac{4}{12} = \boxed{\frac{1}{3}} \\ & = \end{aligned}$$

$$\begin{aligned} \text{c) } & 4 \div \frac{1}{8} \\ & = \frac{4}{1} \times \frac{8}{1} = \boxed{32} \end{aligned}$$

$$\begin{aligned} \text{d) } & -\frac{4}{11} \div \frac{8}{1} \\ & = -\frac{4}{11} \times \frac{1}{8} = \frac{-4}{88} \div 4 = \boxed{-\frac{1}{22}} \end{aligned}$$

$$\begin{aligned} \text{e) } & 1\frac{1}{2} \div -2\frac{1}{8} \\ & = \frac{3}{2} \div -\frac{17}{8} \\ & = \frac{3}{2} \times -\frac{8}{17} = -\frac{24}{34} \\ & = \boxed{-\frac{12}{17}} \end{aligned}$$

$$\begin{aligned} \text{f) } & 5 \div \frac{2}{3} \\ & = \frac{5}{1} \div \frac{2}{3} \\ & = \frac{5}{1} \times \frac{3}{2} \\ & = \boxed{\frac{15}{2}} \end{aligned}$$