Task (pass).
We are taught that to add two fractions we do the following:

$$\frac{a}{b} + \frac{c}{d} = \frac{ad + bc}{bd}.$$

However, it is not immediately obvious that if we use a different *representation* of $\frac{a}{b}$ that we will necessarily get the same answer. That is, if $\frac{a'}{b'} = \frac{a}{b}$ is it necessarily the case that:

$$\frac{ad + bc}{bd} = \frac{a'd + b'c}{b'd}?$$

What we need to show is that the $+$ operation is a **well-defined function**.
More formally, let $R \subseteq \mathbb{Q}^2 \times \mathbb{Q}$ be the binary relation defined as:

$$\left(\left(\frac{a}{b}, \frac{c}{d} \right), \frac{e}{f} \right) \in R \text{ if and only if } (ad + bc)f = bde$$

Show that R satisfies (Fun) and (Tot).