$\frac{5}{8} - \frac{4}{5} = \frac{25-32}{40} = \ldots$ Is it a rational number?

$\frac{3}{7} - \left(\frac{-8}{5}\right) = \ldots$ Is it a rational number?

Try this for some more pairs of rational numbers. We find that *rational numbers are closed under subtraction. That is, for any two rational numbers a and b, a – b is also a rational number.*

(c) Let us now see the product of two rational numbers.

$\frac{-2}{3} \times \frac{4}{5} = \frac{-8}{15}; \frac{3}{7} \times \frac{2}{5} = \frac{6}{35}$ (both the products are rational numbers)

$-\frac{4}{5} \times \frac{-6}{11} = \ldots$ Is it a rational number?

Take some more pairs of rational numbers and check that their product is again a rational number.

We say that *rational numbers are closed under multiplication. That is, for any two rational numbers a and b, a × b is also a rational number.*

(d) We note that $\frac{-5}{3} \div \frac{2}{5} = \frac{-25}{6}$ (a rational number)

$\frac{2}{7} \div \frac{5}{3} = \ldots$. Is it a rational number? $\frac{-3}{8} \div \frac{-2}{9} = \ldots$. Is it a rational number?

Can you say that rational numbers are closed under division?

We find that for any rational number a, $a \div 0$ is **not defined**.

So rational numbers are **not closed** under division.

However, if we exclude zero then the collection of, all other rational numbers is closed under division.

TRY THESE

Fill in the blanks in the following table.

Numbers	Closed under			
	addition	subtraction	multiplication	division
Rational numbers	Yes	Yes	...	No
Integers	...	Yes	...	No
Whole numbers	...	...	Yes	...
Natural numbers	...	No	...	...