Properties of Division of Rational Numbers

A. Write the Missing Terms to Complete the Sentences:

1. Division of a rational number by 1 gives _____.
2. Division of a rational number by itself (except 0) is always _____.
3. Division of 0 by any non-zero rational number is _____.
4. The reciprocal of $-\frac{5}{8}$ is _____.
5. Division of a rational number by another is the same as multiplying by its _____.

B. Mark each sentence with a True (✔) or False (✘):

1. Division of rational numbers is commutative.
2. Rational numbers are not closed under division.
3. Division of a rational number by zero is undefined.
4. For any non-zero rational number a, a ÷ a = 1.
5. The reciprocal of a rational number $\frac{a}{b}$ is $\frac{b}{a}$, provided a ≠ 0.

C. Challenge yourself with these questions:

1. If $\frac{5}{6}$ of a cake is divided equally among 5 people, how much cake does each person get? Use the property of division to solve.
2. Rahul has $-\frac{3}{4}$ of a kilogram of sugar. If he divides it into packets of $\frac{1}{8}$ kg each, how many packets can he make?
3. A class needs to divide a $\frac{7}{9}$ meter long ribbon into equal parts of length $\frac{1}{3}$ meter. How many parts will they get?
4. An electrician has a wire of length $-\frac{6}{7}$ meters. He cuts it into $\frac{2}{7}$ meter pieces. How many such pieces are obtained?
5. Using the property a ÷ b = a × $\frac{1}{b}$, evaluate and explain: $(-\frac{2}{3}) \div (\frac{4}{5})$.