

Teacher Notes

Math 7 Notes (Section 4.8) Division of Rational Numbers

Two numbers whose product is one are called **multiplicative inverse** or **reciprocals**.

In a fraction numerator and denominator switch places. Keep negative sign in numerator

Examples:

$$\frac{-2}{3} \text{ and } \frac{3}{2}$$

Reciprocals have same signs

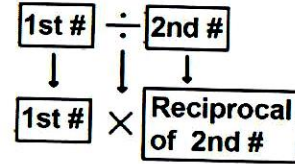
$$-16 \text{ and } ?$$

$$-16 = \frac{-16}{1} \text{ so } \frac{-16}{1} \text{ and } \frac{1}{16}$$

$$4\frac{1}{2} \text{ and } ?$$

$$4\frac{1}{2} = \frac{9}{2} \text{ so } \frac{9}{2} \text{ and } \frac{2}{9}$$

Dividing by a fraction = Multiplying by its reciprocal



neg ÷ neg = pos
neg ÷ pos } neg
pos ÷ neg } neg

Examples:

$$-\frac{6}{7} \div \frac{4}{21}$$

$$-\frac{6}{7} \cdot \frac{3}{4} = \frac{-3(3)}{1(2)} = \frac{-9}{2} = \boxed{-4\frac{1}{2}}$$

More Examples:

$$-12 \div 1\frac{2}{3}$$

$$\frac{2}{3} \div -3\frac{1}{3}$$

$$-\frac{12}{1} \div \frac{5}{3}$$

$$\frac{2}{3} \div -\frac{10}{3}$$

$$-\frac{12}{1} \cdot \frac{3}{5}$$

$$\frac{1}{2} \cdot \frac{-3}{5}$$

$$\frac{-36}{5} = \boxed{-7\frac{1}{5}}$$

$$\boxed{-\frac{1}{5}}$$

More Examples:

$$-2\frac{1}{3} \div -5$$

$$-\frac{5}{6} \div -2\frac{1}{2}$$

$$-\frac{7}{3} \div -\frac{5}{1}$$

$$-\frac{5}{6} \div -\frac{5}{2}$$

$$-\frac{7}{3} \cdot -\frac{1}{5}$$

$$\frac{-1}{5} \cdot \frac{-2}{5}$$

$$\boxed{\frac{7}{15}}$$

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