

## Study Guide

**Multiplying Rational Numbers***You can use the rules below when multiplying rational numbers.*

Rule or Property		Example
Multiplying Two Numbers with Different Signs	The product of two numbers that have different signs is negative.	$(-2x)5y = (-2)(5)xy$ $= -10xy$
Multiplying Two Numbers with the Same Sign	The product of two numbers that have the same sign is positive.	$(-4)(-7) = 28$
Multiplicative Property of $-1$	The product of any number and $-1$ is its additive inverse. $-1(a) = -a$ and $a(-1) = -a$	$(-3)(-4)(-1)(2) = 12(-1)(2)$ $= -12(2)$ $= -24$

**To find the product of two or more numbers, first group the numbers in pairs.**

**Example:** Multiply  $(-2.3)(5.6)(-0.7)(-0.2)$

$$\begin{aligned} (-2.3)(5.6)(-0.7)(-0.2) &= [(-2.3)(5.6)][(-0.7)(-0.2)] && \text{Associative property } (\times) \\ &= (-12.88)(0.14) && \text{Substitution property } (=) \\ &= -1.8032 \end{aligned}$$
**Find each product.**

1.  $(-24)(-2)$

2.  $(6.0)(-0.3)$

3.  $(-2)(-3)(-4)$

4.  $\left(\frac{1}{2}\right)(-10)(5)$

5.  $(-22)(-3)\left(-\frac{2}{3}\right)$

6.  $\left(\frac{4}{5}\right)(-5)(0)(4)$

**Simplify.**

7.  $(-6)(5) + (2)(4)$

8.  $\left(-\frac{3}{4}\right)\left(\frac{1}{8}\right) - \left(\frac{1}{4}\right)\left(\frac{1}{8}\right)$

9.  $-5(2x + x) - 3(-xy)$

10.  $(-5ab)6 - ab(4 + 1)$

11.  $2.3(4c - d) - 0.1(-0.5c + 8d)$

12.  $(-0.9)(1.1) - (-5.1)(0.6)$