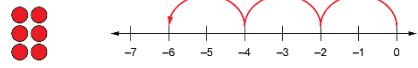


# Lesson 11 Assessment

## Multiplying Integers

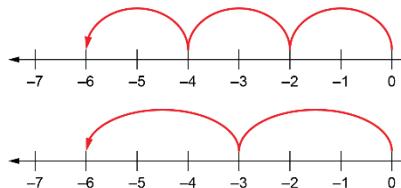
### Multiplying Integers

Uses repeated addition to model integer multiplication concretely and pictorially



$$\begin{aligned} & -2 + (-2) + (-2) = -6 \\ & 3 \times (-2) \text{ is 3 groups of } -2. \\ & 3 \times (-2) = -6 \end{aligned}$$

Uses number properties to multiply integers with opposite signs



$$\begin{aligned} & \text{"3 groups of } -2 \text{ and 2 groups of } -3 \text{ are the same,} \\ & \text{so } 2 \times (-3) = 3 \times (-2). \end{aligned}$$

Uses a pattern to multiply two negative integers

$$\begin{aligned} 3 \times (-3) &= -9 \\ 2 \times (-3) &= -6 \\ 1 \times (-3) &= -3 \\ 0 \times (-3) &= 0 \\ -1 \times (-3) &= 3 \\ -2 \times (-3) &= 6 \end{aligned}$$

"The pattern is 'Add 3 each time.' The product of two negative integers is positive."

Generalizes the sign rules for integer multiplication

$$\begin{aligned} 3 \times 9 &= 27 \\ 3 \times (-9) &= -27 \\ -3 \times 9 &= -27 \\ -3 \times (-9) &= 27 \end{aligned}$$

"The product of two integers is positive when the integers have the same sign, and negative when they do not."

### Observations/Documentation