SKILL 61

# Multiply and Divide Integers

## Teaching Skill 61

**Objective** Multiply and divide integers.

Inform students that multiplying and dividing integers is just like multiplying and dividing whole numbers; the only difference is determining the sign of the final product or quotient.

Review with students the rule for multiplying and dividing integers with like signs. Point out that the sign of the answer is determined by the number of factors that have a negative sign. If none (0) of the factors are negative, the product or quotient is positive. Likewise, if both (2) of the factors are negative, the product or quotient is positive. Ask: **Does it matter which number is larger or if the two numbers have the same value?** (No)

Next, review the rule for multiplying and dividing integers with unlike signs. Ask: **What does "unlike" mean?** (One of the signs is negative and the other is positive.) Ask: **Does it matter which number is larger or if the two numbers have the same value?** (No)

Have students complete the exercises.

### PRACTICE ON YOUR OWN

In exercises 1–12, students multiply and divide integers.

### CHECK

Determine that students know how to multiply and divide integers.

Students who successfully complete the **Practice on Your Own** and **Check** are ready to move on to the next skill.

### COMMON ERRORS

Students may forget to include the negative sign when multiplying or dividing integers with unlike signs.

Students who made more than 2 errors in the **Practice on Your Own,** or who were not successful in the **Check** section, may benefit from the **Alternative Teaching Strategy.**

## Alternative Teaching Strategy

**Objective** Multiply and divide integers using flashcards.

Materials needed: multiple copies of the flashcards shown below

| | | | |
|---|---|---|---|
| $(+)(+)$ | $(+)(-)$ | $(-)(+)$ | $(-)(-)$ |
| $+$ | $-$ | $-$ | $+$ |
| $(+) \div (+)$ | $(+) \div (-)$ | $(-) \div (+)$ | $(-) \div (-)$ |
| $+$ | $-$ | $-$ | $+$ |
| $(12)(10)$ | $15(-3)$ | $-9(6)$ | $(-12)(-6)$ |
| $+120$ | $-45$ | $-54$ | $+72$ |
| $15 \div 5$ | $26 \div (-2)$ | $-18 \div 3$ | $-40 \div (-8)$ |
| $+3$ | $-13$ | $-6$ | $+5$ |
| $(-9)(-9)$ | $7(-7)$ | $8 \div (-8)$ | $-3 \div (-3)$ |
| $+81$ | $-49$ | $-1$ | $+1$ |

Have students work in pairs. Give each pair of students one set of flashcards. Have them divide the cards into two groups; one group with positive and negative signs only, and one group with both numbers and signs.

Instruct students to shuffle the group of cards that has signs only. Students should take turns drawing a card and stating a rule such as "positive times negative is negative."

When students show an understanding of how the products and quotients of signs work, instruct them to switch to the cards that have numbers.

Again, students should shuffle the cards and repeat the process described above.

As an extension of this exercise, have students create additional cards with a variety of sign combinations.

Name _____ Date _____ Class _____

SKILL 61

# Multiply and Divide Integers

| Multiplying and Dividing Integers | |
|---|---|
| Like Signs | Unlike Signs |
| Rule: When multiplying or dividing two integers with like signs (both positive or both negative), the product or quotient is always positive. | Rule: When multiplying or dividing two integers with unlike signs (one positive and one negative), the product or quotient is always negative. |
| Example 1: Multiply $-5(-10)$. The signs are the same so the product is $+50$. | Example 2: Divide $27 \div (-9)$. The signs are different so the quotient is $-3$. |

## Practice on Your Own

**Perform each indicated operation.**

**1.** $5(-3)$ _____

**2.** $24 \div (-6)$ _____

**3.** $-11(5)$ _____

**4.** $-40 \div 5$ _____

**5.** $-9(-7)$ _____

**6.** $-18 \div (-3)$ _____

**7.** $-25(6)$ _____

**8.** $\frac{-60}{4}$ _____

**9.** $13(2)$ _____

**10.** $\frac{-49}{-7}$ _____

**11.** $-8(4)$ _____

**12.** $\frac{48}{-16}$ _____

## Check

**Perform each indicated operation.**

**13.** $7(-10)$ _____

**14.** $-42 \div (-7)$ _____

**15.** $-8(9)$ _____

**16.** $35 \div (-5)$ _____

**17.** $-4(-16)$ _____

**18.** $-144 \div 12$ _____

**19.** $-3(-3)$ _____

**20.** $\frac{-120}{-10}$ _____

**6.** $7 \times 24 = (7 \times 20) + (7 \times 4)$
$= 140 + 28$
$= 168$

## SKILL 60 ANSWERS:

### Practice on Your Own

**1.** $\frac{4}{15}$
**2.** 3
**3.** $\frac{1}{9}$
**4.** $1\frac{1}{2}$
**5.** $\frac{1}{7}$
**6.** $\frac{1}{11}$
**7.** $4\frac{1}{2}$
**8.** 6

### Check

**9.** $\frac{1}{18}$
**10.** $\frac{2}{3}$
**11.** $\frac{5}{14}$
**12.** 9
**13.** $\frac{1}{12}$
**14.** $\frac{1}{7}$
**15.** $1\frac{1}{2}$
**16.** 15

## SKILL 61 ANSWERS:

### Practice on Your Own

**1.** $-15$
**2.** $-4$
**3.** $-55$
**4.** $-8$
**5.** 63
**6.** 6
**7.** $-150$
**8.** $-15$
**9.** 26
**10.** 7
**11.** $-32$
**12.** $-3$

### Check

**13.** $-70$
**14.** 6
**15.** $-72$
**16.** $-7$
**17.** 64
**18.** $-12$
**19.** 9
**20.** 12

## SKILL 62 ANSWERS:

### Practice on Your Own

**1.** $n^2 + 9n + 18$
**2.** $c^2 + 7c - 60$
**3.** $10q^2 + 43q + 12$
**4.** $3k^2 + 20k - 7$
**5.** $u^2 - 1$
**6.** $r^2 + 12r + 36$
**7.** $25a^2 - 16$
**8.** $24g^2 + 44g + 12$
**9.** $20z^2 + 22z - 16$
**10.** $8p^2 - 22p + 9$

### Check

**11.** $x^2 + 11x + 28$
**12.** $2w^2 - 12w - 54$
**13.** $p^2 + 10p + 25$
**14.** $4t^2 - 49$
**15.** $7y^2 - 10y + 3$
**16.** $27m^2 + 42m + 8$