

Objectives:

- Students will multiply positive integers using its definition of repeated addition, as demonstrated by their completion of a homework assignment where they do so.
- Students will apply multiplicative commutativity, as evidenced by their completion of a multiplication table using commutativity.
- Students will memorize the multiplication table, as evidenced by them passing “minute tests.”

Teacher Materials:

- “Adding & Subtracting Integers Quiz”
- “Lesson 6 Homework” answer key and grading roster for TA
- ALEKS student time sheet
- “Multiplying Integers Homework” handout

Student Materials:

- Homework Log
- Homework Checker
- Readiness Checker
- Binder Paper
- Pencils
- Lesson 6 Homework

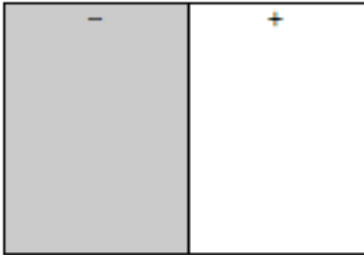
Homework:

- Multiplying Integers Handout
- Study for Minute Quiz

Time	Activity
Before Bell	<p style="text-align: center;">DO NOW</p> <p>ALEKS Student Time Sheet Put a copy of the ALEKS student time sheet on every desk. Since most students are behind on hours (they should have 3 hours by the end of today), this is to motivate students to work on ALEKS after they finish the quiz.</p> <p>Do Now</p> <ul style="list-style-type: none"> • <i>Quietly</i> work on quiz. When done, give it to Mr. Wong and work on ALEKS.
15 min	<p style="text-align: center;">QUIZ</p> <p>Give students the quiz when they enter the classroom. While they are working on the quiz, have the TA go around and collect homework and stamp homework checkers. Stamp the readiness checkers of students who are ready when the bell rings and have their readiness checkers out. Then, take attendance.</p>
45 min	<p style="text-align: center;">ALEKS</p> <p>Students should continue with ALEKS.</p>
1 min	<p style="text-align: center;">STRETCH BREAK</p> <p>Before transitioning to the lecture, lead the students through some exercises to refresh them.</p>
19 min	<p style="text-align: center;">LESSON: MULTIPLYING INTEGERS</p> <p>Notes Follow the handwritten Cornell Notes.</p> <p>Minute Quizzes Explain the minute quizzes that will be given the following week. They are short quizzes (one minute long) that test students on multiplication, and students must pass each one with $\geq 90\%$ to get any credit. For example, if a student scores 85%, then the test doesn't count. If they score 95%, then they get a 95%. They can attempt each minute test three times. The first attempt is given at the start of class, and the two retakes must be done after school.</p> <p>Homework Pass out the “Multiplying Integers Homework” handout and have students write down the assignment on their homework logs.</p>

Evaluate the following addition problems using an integer mat (5 points each):

1. $(5) + (-3)$



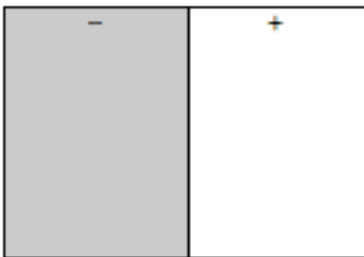
2. $(-4) + (2)$



**Rewrite the following subtraction problems as addition problems (3 points each).
Then, evaluate the addition problem using an integer mat (2 points each).**

3. $(3) - (2)$

Addition problem: _____



4. $(-1) - (-2)$

Addition problem: _____



Answer the following place value problem (3 points each):

5. The number, 123, means we have ___ hundred(s), ___ ten(s), and ___ one(s).

6. The number, 49, means we have ___ hundred(s), ___ ten(s), and ___ one(s).

Evaluate the following addition problems (5 points each):

7.
$$\begin{array}{r} 123 \\ +45 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 234 \\ +16 \\ \hline \end{array}$$

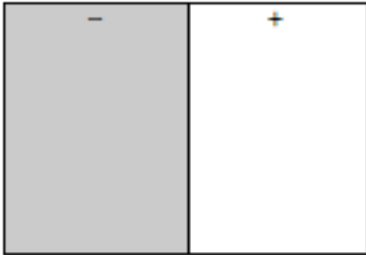
Evaluate the following subtraction problems (5 points each):

9.
$$\begin{array}{r} 345 \\ -23 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 456 \\ -87 \\ \hline \end{array}$$

Evaluate the following addition problems using an integer mat (5 points each):

1. $(4) + (-3)$



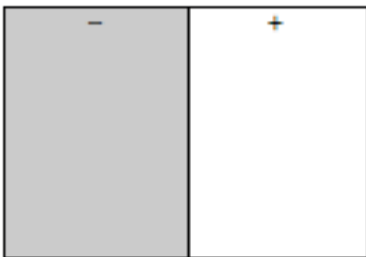
2. $(-3) + (1)$



**Rewrite the following subtraction problems as addition problems (3 points each).
Then, evaluate the addition problem using an integer mat (2 points each).**

3. $(3) - (4)$

Addition problem: _____



4. $(-1) - (-3)$

Addition problem: _____



Answer the following place value problem (3 points each):

5. The number, 456, means we have ___ hundred(s), ___ ten(s), and ___ one(s).

6. The number, 56, means we have ___ hundred(s), ___ ten(s), and ___ one(s).

Evaluate the following addition problems (5 points each):

7.
$$\begin{array}{r} 456 \\ +23 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 678 \\ +12 \\ \hline \end{array}$$

Evaluate the following subtraction problems (5 points each):

9.
$$\begin{array}{r} 345 \\ -11 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 123 \\ -45 \\ \hline \end{array}$$

Multiplying Integers

Section → Definition

★ Multiplication tells how many times to add a number to itself.

Ex: $2 \cdot 3$ means add 2 to itself 3 times

$$2 \cdot 3 = \underbrace{2+2+2}_{3 \text{ times}} = 6$$

Ex: $3 \cdot 2$ means add 3 to itself 2 times

$$3 \cdot 2 = 3+3=6$$

In the above examples, we found $2 \cdot 3 = 3 \cdot 2$. This is true ~~commutativity~~ in general, and this property ($ab=ba$) is called ~~commutativity~~ commutativity.

$$\text{Here's why: } 2 \cdot 3 = 2+2+2 \rightarrow \begin{array}{c} 00 \\ 00 \\ 00 \end{array} = \begin{array}{c} 000 \\ 000 \end{array} \rightarrow 3+3 = 3 \cdot 2$$

Ex: $2387 \cdot 94 = 221991$. What is $2387 \cdot 95$?

$$2387 \cdot 95 = \underbrace{2387 + \overset{+2387}{\cancel{2387}} + 2387}_{95 \text{ times}}$$

$$= \underbrace{2387 + \dots + 2387}_{94 \text{ times}} + \underbrace{2387}_{1 \text{ time}}$$

$$= 2387 \cdot 94 + 2387$$

$$= 221991 + 2387$$

$$= 224378$$

$$\begin{array}{r} 221991 \\ + 2387 \\ \hline 224378 \end{array}$$

$$\text{Ex: } 0 \cdot 5 = 0+0+0+0+0 = 0$$

Solve the following multiplication problems. You have exactly one minute!

$1 \cdot 8 =$

$2 \cdot 3 =$

$4 \cdot 7 =$

$12 \cdot 4 =$

$5 \cdot 6 =$

$7 \cdot 1 =$

$1 \cdot 9 =$

$10 \cdot 10 =$

$3 \cdot 7 =$

$4 \cdot 3 =$

$0 \cdot 4 =$

$2 \cdot 7 =$

$2 \cdot 6 =$

$4 \cdot 5 =$

$9 \cdot 9 =$

Solve the following multiplication problems. You have exactly one minute!

$1 \cdot 1 =$

$2 \cdot 1 =$

$3 \cdot 1 =$

$4 \cdot 1 =$

$5 \cdot 1 =$

$6 \cdot 1 =$

$7 \cdot 1 =$

$8 \cdot 1 =$

$9 \cdot 1 =$

$10 \cdot 1 =$

$11 \cdot 1 =$

$12 \cdot 1 =$

$1 \cdot 2 =$

$2 \cdot 2 =$

$3 \cdot 2 =$

$4 \cdot 2 =$

$5 \cdot 2 =$

$6 \cdot 2 =$

$7 \cdot 2 =$

$8 \cdot 2 =$

$9 \cdot 2 =$

$10 \cdot 2 =$

$11 \cdot 2 =$

$12 \cdot 2 =$

Solve the following multiplication problems. You have exactly one minute!

$1 \cdot 3 =$

$2 \cdot 3 =$

$3 \cdot 3 =$

$4 \cdot 3 =$

$5 \cdot 3 =$

$6 \cdot 3 =$

$7 \cdot 3 =$

$8 \cdot 3 =$

$9 \cdot 3 =$

$10 \cdot 3 =$

$11 \cdot 3 =$

$12 \cdot 3 =$

$1 \cdot 4 =$

$2 \cdot 4 =$

$3 \cdot 4 =$

$4 \cdot 4 =$

$5 \cdot 4 =$

$6 \cdot 4 =$

$7 \cdot 4 =$

$8 \cdot 4 =$

$9 \cdot 4 =$

$10 \cdot 4 =$

$11 \cdot 4 =$

$12 \cdot 4 =$

