

Least Common Multiple

Lesson 1-3

Name: _____

Date: _____

Class: _____

Key Vocabulary

Level 1 support

Picture first, then the word, then a plain-language meaning. Say each word out loud.

Multiples of 4: 4, 8, 12, 16, 20 — found by multiplying 4×1 , 4×2 , 4×3 , ...

Multiple

What you get when you multiply a number by 1, 2, 3, and so on.

Multiples of 4: 4, 8, 12, 16, 20, 24. Multiples of 6: 6, 12, 18, 24. First match: $12 \rightarrow \text{LCM} = 12$

Least common multiple

The smallest number that two or more numbers both go into.

12, 24, and 36 are all common multiples of both 3 and 4

Common multiple

A number that two or more numbers both go into.

Skip count by 6: 6, 12, 18, 24, 30 — each jump adds 6

Skip counting

Counting by a number, like 2, 4, 6, to list its multiples.

$4 = 2 \times 2$, $6 = 2 \times 3$. LCM uses the highest power of each prime: $2^2 \times 3 = 12$

Prime factorization

Writing a number as prime numbers multiplied together. It helps you find the LCM.

Key Ideas & Notes

- Astronaut Reyes checks the oxygen system every 4 hours.
- Astronaut Chen checks the water recycler every 6 hours.
- They both start their shifts at 6:00 AM.
- When is the next time both astronauts will be checking their systems at the same time?
- Here are the first several multiples of 4 and 6 mixed together. Sort them — which are common multiples of BOTH 4 and 6, and which are multiples of only one?

Think About It

- How often does each astronaut check their system?
- What times will each astronaut be doing checks?
- When will both schedules line up at the same time?

My Notes

Guided Examples

Example 1

What is the LCM of 3 and 5?

Solution: Multiples of 3: 3, 6, 9, 12, 15, ... Multiples of 5: 5, 10, 15, ... The smallest common multiple is 15.

Answer: A. 15

Example 2

What is the LCM of 6 and 8?

Solution: Multiples of 6: 6, 12, 18, 24, ... Multiples of 8: 8, 16, 24, ... The smallest common multiple is 24.

Answer: A. 24

Example 3

What is the LCM of 4 and 10?

Solution: Multiples of 4: 4, 8, 12, 16, 20, ... Multiples of 10: 10, 20, ... The smallest common multiple is 20.

Answer: A. 20

Write About the Math

The Writing Revolution

I can explain how I found the LCM using the words multiple, common multiple, skip counting, and least common multiple.

1. Kernel Sentence subject + verb

Model: Multiple is what you get when you multiply a number by 1, 2, 3, and so on.

Múltiplo es lo que obtienes al multiplicar un número por 1, 2, 3, y así.

Write a kernel sentence about multiple. Use a subject and a verb.

Escribe una oración base sobre múltiplo. Usa un sujeto y un verbo.

2. Sentence Expansion because · but · so

Kernel: Multiple matters in math

Múltiplo importa en matemáticas

Expand the kernel three ways. Add a reason, a contrast, and a result.

because
porque

Multiple matters in math because ____.

Múltiplo importa en matemáticas porque ____.

but
pero

Multiple matters in math, but ____.

Múltiplo importa en matemáticas, pero ____.

so
entonces

Multiple matters in math, so ____.

Múltiplo importa en matemáticas, entonces ____.

3. Sentence Types 4 ways to write a math idea

Statement
Afirmación

Tell one true fact about multiple.
Di un hecho verdadero sobre multiple.

Multiple ____.

Question
Pregunta

Ask a question about multiple.
Haz una pregunta sobre multiple.

How does ____ ?

¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about multiple.
Muestra entusiasmo sobre multiple.

Wow, ____ !

¡Guau, ____ !

Command
Mandato

Tell a partner what to do with multiple.
Dile a un compañero qué hacer con multiple.

First, ____ .

Primero, ____ .

4. Explain Your Reasoning use a sentence starter

The multiples of ____ **are** ____ .

Los múltiplos de ____ *son* ____ .

The least common multiple is ____ .

El mínimo común múltiplo es ____ .

This is useful when ____ .

Esto es útil cuando ____ .

Try It

Solve on your own. Check the answer key when you are done.

1. What is the LCM of 2 and 7?

- A. 14
- B. 7
- C. 2
- D. 9

Show your work:

2. Two buses leave the station at 8:00 AM. Bus A returns every 15 minutes and Bus B returns every 20 minutes. When is the next time both buses are at the station together?

- A. 9:00 AM (60 minutes later)
- B. 8:30 AM (30 minutes later)
- C. 8:40 AM (40 minutes later)
- D. 9:20 AM (80 minutes later)

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

Hot dogs come in packs of 8 and buns come in packs of 6. What is the fewest of each you can buy so you have the same number of hot dogs and buns with none left over? Explain how the LCM solves this problem.

Sentence starter: The LCM of 8 and 6 is _____. I need to buy _____ packs of hot dogs and _____ packs of buns to get _____ of each. This works because _____.

Show your work:

Reflect — Exit Ticket

What is the LCM of 9 and 12?

- A. 36
- B. 108
- C. 3
- D. 72

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** A. 14 — *Since 2 and 7 share no common factors (they are relatively prime), $LCM = 2 \times 7 = 14$.*
2. **Try It 2:** A. 9:00 AM (60 minutes later) — *$LCM(15, 20) = 60$ minutes. Both buses return together 60 minutes after 8:00 AM, at 9:00 AM.*
3. **Exit Ticket:** A. 36 — *Multiples of 9: 9, 18, 27, 36, ... Multiples of 12: 12, 24, 36, ... The smallest common multiple is 36.*

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Multiple is what you get when you multiply a number by 1, 2, 3, and so on.
- **Expansion:** *because* gives a reason, *but* shows a contrast or exception, *so* shows a result. Answers vary; each must keep the kernel idea and add the correct kind of detail.
- **Sentence types:** Statement ends with a period, question with "?", exclamation with "!", and a command starts with an action verb (a "bossy" verb).