Divide Multi-Digit Numbers

Lesson 1-4

Name: _____ Date: _____ Class: _____

Key Vocabulary

Level 1 support

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

In 156 ÷ 12 = 13, the dividend is 156 — it is the total being split up

Dividend

The number you are splitting up in a division problem.

In 156 ÷ 12 = 13, the divisor is 12 — it is the size of each group

Divisor

The number you split by in a division problem.

In 156 ÷ 12 = 13, the quotient is 13 — there are 13 groups

Quotient

The answer when you divide.

17 ÷ 5 = 3 R 2 means 3 groups of 5 with 2 left over

Remainder

What is left over when a number does not divide evenly.

1,344 ÷ 12: first 12 × 100 = 1,200, then 12 × 12 = 144. Quotient = 100 + 12 = 112

Partial quotients

A way to divide by breaking the problem into smaller, easier steps.

Key Ideas & Notes

- The space station has 1,344 nutrition bars that must be divided equally among 12 crew sections for a 4-week rotation.
- How many bars does each section receive?
- Break apart the division 1,344 ÷ 12 using partial quotients. Sort each partial product — does it help build toward the answer, or is it NOT a step in this division?

Think About It

- What total amount needs to be divided?
- How many groups are the supplies being split into?
- Will each section get the same amount with none left over?

My Notes

Guided Examples

Example 1

What is 936 ÷ 12?

Solution: 12 × 78 = 936. You can verify: 12 × 70 = 840, 12 × 8 = 96, 840 + 96 = 936.

Answer: A. 78

Example 2

What is 2,485 ÷ 5?

Solution: 5 × 497 = 2,485. Check: 5 × 400 = 2,000, 5 × 90 = 450, 5 × 7 = 35. 2,000 + 450 + 35 = 2,485.

Answer: A. 497

Example 3

What is 756 ÷ 9?

Solution: 9 × 84 = 756. Check: 9 × 80 = 720, 9 × 4 = 36, 720 + 36 = 756.

Answer: A. 84

Write About the Math

The Writing Revolution

I can explain my division using the words dividend, divisor, quotient, and remainder.

1. Kernel Sentence

subject + verb

Model: Partial quotients is a way to divide by breaking the problem into smaller, easier steps.
Cocientes parciales es una manera de dividir separando el problema en pasos más fáciles.

Write a kernel sentence about partial quotients. Use a subject and a verb.
Escribe una oración base sobre cocientes parciales. Usa un sujeto y un verbo.

2. Sentence Expansion

because · but · so

Kernel: Partial quotients matters in math
Cocientes parciales importa en matemáticas

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

because / ***porque***

Partial quotients matters in math because ____.
Cocientes parciales importa en matemáticas porque ____.

but / ***pero***

Partial quotients matters in math, but ____.
Cocientes parciales importa en matemáticas, pero ____.

so / ***entonces***

Partial quotients matters in math, so ____.
Cocientes parciales importa en matemáticas, entonces ____.

3. Sentence Types

4 ways to write a math idea

Statement
Afirmación

Tell one true fact about partial quotients.
Di un hecho verdadero sobre partial quotients.

Partial quotients ____.

Question
Pregunta

Ask a question about partial quotients.
Haz una pregunta sobre partial quotients.

How does ____ ?
¿Cómo ____ ?

Exclamation
Exclamación

Show excitement about partial quotients.
Muestra entusiasmo sobre partial quotients.

Wow, ____ !
¡Guau, ____ !

Command
Mandato

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

First, ____ .
Primero, ____ .

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4. Explain Your Reasoning

use a sentence starter

First I ____, then I ____.
Primero ____, luego ____.

The quotient is ____ because ____.
El cociente es ____ porque ____.

I would divide to ____.
Dividiría para ____.

Try It

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

1. What is 1,125 ÷ 9?

A. 125

B. 115

C. 135

D. 124

Show your work:

2. A warehouse has 2,184 items to pack into boxes of 14. How many boxes are needed?

A. 156 boxes

B. 146 boxes

C. 166 boxes

D. 155 boxes

Show your work:

Stretch Your Thinking

Level 2 enrichment

Challenge task — explain your reasoning in full sentences.

A school has 1,680 pencils to distribute equally to 24 classrooms. Show how to solve this using partial quotients. Explain each step and check your answer by multiplying.

Sentence starter: 1,680 ÷ 24 = ____. First I used 24 × ____ = ____, then 24 × ____ = ____. The partial quotients add to ____. I checked by multiplying: 24 × ____ = 1,680.

Show your work:

Reflect — Exit Ticket

What is 2,352 ÷ 16?

A. 147

B. 137

C. 157

D. 146

Your answer:

Answer Key & Teacher Guide

1. **Try It 1:** A. 125 — *9 × 125 = 1,125. Check: 9 × 100 = 900, 9 × 25 = 225, 900 + 225 = 1,125.*
2. **Try It 2:** A. 156 boxes — *2,184 ÷ 14 = 156. Check: 14 × 156 = 14 × 150 + 14 × 6 = 2,100 + 84 = 2,184.*
3. **Exit Ticket:** A. 147 — *16 × 147 = 2,352. Check: 16 × 100 = 1,600, 16 × 40 = 640, 16 × 7 = 112. 1,600 + 640 + 112 = 2,352.*

Writing (TWR) — what to look for

- **Kernel sentence:** A complete sentence needs a subject and a verb. Example: Partial quotients is a way to divide by breaking the problem into smaller, easier steps.
- **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).