

Lesson 23: Solve Problems with Many Operations

Standards Alignments

Addressing 4.MD.A.2, 4.NBT.B.4, 4.NBT.B.5, 4.NBT.B.6

Teacher-facing Learning Goals

- Solve multi-step problems involving the four operations.

Student-facing Learning Goals

- Let's solve multi-step problems involving the four operations.

Lesson Purpose

The purpose of this lesson is for students to use the four operations to solve problems involving multi-digit numbers. Students also use the standard algorithm for addition and subtraction to solve problems. For each problem, they assess the reasonableness of their responses.

In the preceding lessons, students interpret situations and solve them using a variety of reasoning strategies. The computations focus mostly on multiplication and division, and the numbers are mainly two and three digits long.

In this lesson, students continue to engage in problem solving—this time in the context of finding distances. Students now use the four operations and work with numbers up to five digits. In the next lesson, they will work with numbers up to 1 million.

Access for:

Students with Disabilities

- Engagement (Activity 1)

English Learners

- MLR8 (Activity 2)

Instructional Routines

True or False (Warm-up)

Materials to Gather

- Grid paper: Activity 2

Lesson Timeline

Warm-up

10 min

Teacher Reflection Question

As you finish up this unit, reflect on the norms and activities that have supported each student

Activity 1	20 min
Activity 2	15 min
Lesson Synthesis	10 min
Cool-down	5 min

in learning math. How have you seen each student grow as a young mathematician throughout this work? How have you seen yourself grow as a teacher? What will you continue to do and what will you improve on in Unit 7?

Cool-down (to be completed at the end of the lesson)

 5 min

Long-distance Driving

Standards Alignments

Addressing 4.MD.A.2, 4.NBT.B.4

Student-facing Task Statement

A truck driver needs to deliver goods to a city that is 2,654 km away.

1. If she drives 285 km each day, could she get there in 8 days? Show your reasoning.
2. In the first three days, the driver traveled 1,087 km. At the end of the fourth day, she has 972 km to go. How many km did she travel on the fourth day?

Student Responses

1. No. Sample response:
 - Even if she drives 300 km a day, she'd only travel 2,400 km in 8 days, so she can't travel 2,654 km with less than 300 km per day.
 - $285 \times 8 = 2,280$. At 285 km per day, she'd only travel 2,280 km in 8 days.
 - $2,654 = 8 \times 337 + 6$. This means she'd need to travel at least 338 km a day to get to her destination in 8 days.
2. 595 km. Sample response: After the third day, she had $2,654 - 1,087$ or 1,567 km left. After the fourth day she has 972 km left, so she must have traveled 595 km, because $1,567 - 972 = 595$.