

Solving Problems With Proportions

Summary

Students will solve a variety of problems using proportions.

Main Core Tie

Mathematics Grade 7

[Strand: RATIOS AND PROPORTIONAL RELATIONSHIPS \(7.RP\) Standard 7.RP.1](#)

Additional Core Ties

Mathematics Grade 7

[Strand: RATIOS AND PROPORTIONAL RELATIONSHIPS \(7.RP\) Standard 7.RP.2](#)

Mathematics Grade 7

[Strand: RATIOS AND PROPORTIONAL RELATIONSHIPS \(7.RP\) Standard 7.RP.3](#)

Materials

Foldable: [Solving Proportions](#)

Calculators

Worksheet: [Solving Proportions](#)

Background for Teachers

Enduring Understanding (Big Ideas):

Proportions can be used to solve a variety of problems.

Essential Questions:

How can a proportion be used to solve a problem?

Skill Focus:

Set up and solve proportions. Work with percent

Vocabulary Focus:

Ratio, proportion

Ways to Gain/Maintain Attention (Primacy):

graphic organizer, game, technology

Instructional Procedures

Starter:

Which are proportions?

What number should n represent:

Lesson Segment 1: How can a proportion be solved?

We know we can recognize two ratios that form a proportion by dividing each to determine if the quotients are equivalent. There is another way we can recognize a proportion. Show students how to find cross products in a proportion by having them find cross products on the Starter questions. Then show them how to solve # 2 on the starter using cross products rather than using guessing and checking.

Board Race Game: Make a space for each of 8 or 9 teams to write on the board. Number students on a team 1-4. Put a proportion for the class to solve on the overhead. Students work together using the cross products method for setting up and solving the proportion equation. After they have had a chance to work on the problem with their team or partner, say, "Person # 3, GO"! The person on each team who is that number quickly moves to the space you have made for the team on the board, sets up the problem, solves, and checks it. Then, the person moves quickly back to their seat. Note the

first four to finish. When all have returned to their seats, have class look to see who worked the problem correctly. Give a point to any of the first four completed, who have correctly worked the procedure. Repeat with another problem, this time calling a different student number to come to the board, etc.

Lesson Segment 2: How can a proportion be used to solve real-world problems?

Students use Smart Pals and the reading strategy to set up and solve the problems on the "Proportion Problems" worksheet. Once the Smart Pals have been shown to the class, have them record the problem on their worksheet. Reading Strategy: Have students each read a problem and share with a partner what they think is, a) the key information in the problem, and b) what the question is asking them to find. Ask two pairs to their share ideas with class for each problem. Once students have identified key information and the question, the teacher should do a think-aloud modeling how to determine what information will be placed in what position on each ratio to form a proportion.

Journal: Make the Solving Proportions Foldable with the students. This is a center fold, where the two outside quarters fold toward the center to make doors.

Assign appropriate text practice

Assessment Plan

observation, performance task, journal

Bibliography

This lesson plan was created by Linda Bolin.

Authors

[Utah LessonPlans](#)