# 7TH GRADE POWER PROBLEMS

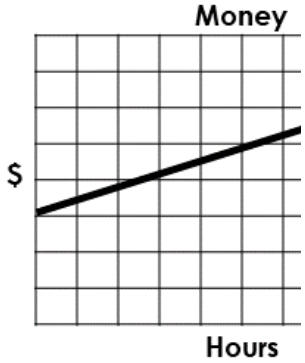
## Ratio & Proportional Relationships

Name:

Alex is going on a
during summer ca
bike at a rate of 7.
They left the camp
rate, will they reac
by 11:45 am?

Name:

The graph below sho
Emily earns for worki
job on the weekend
relationship? Why or




Name:

POWER PROBLEM 7.RP.3

Austin has been saving his money to go on the Ecology Club's trip to Costa Rica this year. The trip costs a total of $3,400. However, since he signed up by the early registration day, he received a 10% discount. Then, his mother gave him $400. He has already saved 70% of the remaining amount. How much money does he have left to save?

# WHAT ARE POWER PROBLEMS?

**PURPOSEFUL** - These problems are meant to keep students focused, while strengthening initiative and perseverance.

**OPPORTUNITIES** - These prompts can be used in a variety of ways. P.O.W.E.R problems can be used to introduce a lesson, spiral review, or as formative assessments.

## WITH

**ENGAGEMENT** - Problems are real word applicable and designed to hook students with interest and presentation. Complexity of problems promotes problem solving skills.

**RIGOR** - Tasks are specifically designed to challenge students and assess conceptual understanding of curriculum versus procedural understanding. Students will need to apply more than just a "formula."

# WHY USE POWER PROBLEMS?

## BUILD STAMINA WITHIN YOUR STUDENTS

**MORE THAN JUST A COOKIE CUTTER TEXTBOOK APPROACH** - P.O.W.E.R problems are designed to challenge your students with their open ended presentation. Majority of problems that come from textbooks and workbooks assess procedural understanding of curriculum. Some textbooks even provide step by step instructions where the textbook is thinking for the students and taking away that "productive struggle" for children. When we rob students of that event, we rob them of their ability to reason, problem solve, and see beyond a standard algorithm. P.O.W.E.R problems are meant to show students that there are different ways to answer one question in math. With these tasks students take ownership and are part of the problem solving process versus filling in blanks in a textbook.

# SAMPLE QUESTIONS:

Name:

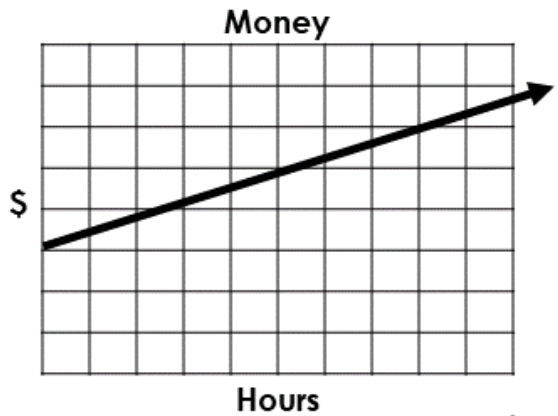
POWER PROBLEM 7.RP.1

Alex is going on a 30 mile bike ride during summer camp. He is riding his bike at a rate of 7.4 miles per hour. They left the camp at 7:30 am. At this rate, will they reach their destination by 11:45 am?

Name:

POWER PROBLEM 7.RP.2

The graph below shows the money that Emily earns for working at her part time job on the weekend. Is this a proportional relationship? Why or why not?




SAMPLE

# HOW TO USE POWER PROBLEMS

## YOUR KIDS. YOUR CHOICE. FLEXIBILITY.

**TO INTRODUCE A LESSON** - P.O.W.E.R problems can be used to introduce a new skill. In this case your students will experience a "productive struggle." Their problem solving skills and prior knowledge will kick in. Often times most of my students will have the incorrect answer or no answer at all. I then have someone explain their method/reasoning and allow my students to critique their peer's answer. This makes for great accountable talk discussions. If I see that most students do not have an answer I will assist the class in getting to a specific point and then allow them to finish independently.

**SPIRAL REVIEW** - Avoid your students forgetting standards by using P.O.W.E.R problems to spiral review previously taught lessons.

**FORMATIVE ASSESSMENTS** - You can use these problems to assess mastery and levels of understanding.