

8TH GRADE

POWER



PROBLEMS

Expressions & Equations

Name:

Alex simplified the expression. Explain the mistake that he made and give the correct answer.

$$5^2(5^3) = 5^6 =$$

Name:

Alex works at an amusement park 4 days a week for 20 weeks during the summer. He works 8 hours each day. Each hour about 400 people ride. How many people will ride during the summer? Write an inequality in both scientific and standard form.

Name:

Martha and her friend have \$20 to spend at the ball game. They plan to buy 2 hot dogs for \$2.50 each, 2 drinks for \$1.25 each and a popcorn for \$2. They are going to spend the rest on candy that is \$0.50 per piece. Write and solve an inequality that could be solved to determine how many pieces of candy they can buy.



POWER
PROBLEM
8.EE.7

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
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8.EE.4

Alex works at an amusement park 5 days a week for 20 weeks during the summer. He works 8 hours each day. Each hour about 400 people ride his ride. How many people ride his ride during the summer? Express your answer in both scientific and decimal notation.

SAMPLE

Name: _____



POWER
PROBLEM
8.EE.7

Martha and her friend have \$20 to spend at the ball game. They plan to buy 2 hot dogs for \$2.50 each, 2 drinks for \$1.25 each and a popcorn for \$2. They are going to spend the rest on candy that is \$0.50 per piece. Write and solve an inequality that could be solved to determine how many pieces of candy they can buy.

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.