

7TH GRADE

POWER



PROBLEMS

Expressions & Equation

Name: _____

Match the equivalent from each column:

Column 1:

- A) $4(3x - 9)$
- B) $2.5(2x + 10) + x$
- C) $36 + 4(x - 3)$

Name: _____

Alex, Chris and Sam are spending on vacation this summer. The amount of money each person has spent can be represented by the expressions below. Write a single expression for the total amount of money they have spent.

Person	Amount
Alex	
Chris	
Sam	

Name: _____

The length of a rectangle is twice the width of a rectangle. Then, the length was increased by 14 inches and the width was decreased by 10 inches. Write an expression that represents the area of the rectangle in terms of x , where x is the width of the rectangle.



POWER
PROBLEM
7.EE.3

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.EE.2

Alex, Chris and Sam are all saving money to spend on vacation this summer. The amount of money each person has in the bank can be represented by the expressions below. Write a single expression that represents the total amount of money they have.

Person	Amount of Money
Alex	$5x - 13$
Chris	$2x + 1$
Sam	$7x$

Name: _____

 POWER PROBLEM 7.EE.3

The length of a rectangle is twice the width of a rectangle. Then, the length was increased by 14 inches and the width was decreased by 10 inches. Write an expression that represents the area of the rectangle in terms of x , where x is the width of the rectangle.

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.