A Math Problem Solving Inventory

for gifted learners

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Problem #1

If $R \div 3.7 = 10.9$,
then what is the value of $R \div 0.37$?

Context and Purpose

- District
- Students
- Curriculum
- Program
- Purpose

Design of the test

- Problems
- Layout
- Instructions

The Rubric

- Reasoning/Logic
- Conceptual Understanding
- Problem Solving
- Connections / Relationships
- Flexibility / Creativity
- Disposition (noted without score)

Scoring

The student demonstrates the characteristics in the category:

4	Always or far beyond the level of a typical student.
3	Often or significantly beyond the level of a typical student.
2	Sometimes or beyond the level of a typical student.
1	Occasionally or slightly beyond the level of a typical student.
0	At about the level of a typical student.

Sample Description

Reasoning and Logic

- Organizes and categorizes information in order to analyze it.
- Makes and tests conjectures.
- Recognizes, extends, and creates patterns.
- Develops proofs / convincing arguments.

Note: Descriptions informed by “Characteristics of a Mathematically Promising Student” in *Extending the Challenge in Mathematics*, page 3. By Linda Jensen Sheffield. Corwin Press, 2003

discussion

The Scoring Process

- Participants
- Get prepared
- Establish a baseline
- Organize a process
- Benefits of the experience

Reasoning and Logic

Problem 1 (Answer: 109)

- Solves the problem by making reasonable guesses and testing them.
- Notices and correctly uses patterns in movement of digits / decimal point.
- Shows evidence of searching for an efficient / elegant approach.
- Explains *why* the solution process and/or answer makes sense (especially by using mathematical terminology appropriately and effectively).

Problem 2 (Answer: 2 1/3 oz lemonade, 7 oz orange juice, 11 2/3 oz water.)

- Organizes information effectively (perhaps using tables or graphs).
- Solves the problem by finding and extending patterns.
- Provides a clear justification of the thinking process (especially by using mathematical terminology appropriately and effectively).

The Larger ID Process

- Other measures used
- How the measures were used
- Observations

Let's talk!

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