



# Current Pre-Algebra PoW

The Math Forum's Problems of the Week provide non-routine constructed response problems. The Pre-Algebra problems target concepts typically learned in grades 6-8. Memberships and mentoring options are available at the individual, class, school, and district levels.

## Bank Balances - to be posted March 19, 2007

Currently Tamil has \$600 in his bank account, while Nydiah has \$500 in hers.

Every Friday afternoon Tamil withdraws \$15. At the same time Nydiah withdraws \$12 knowing that she can't spend as much as Tamil.

Will their account balances ever be equal? If they are ever equal, how many weeks will it take? If they are not ever equal, what's the smallest difference?

**Extra:** How much could Nydiah withdraw each week so that they both run out of money at the same time?



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Learn more about the PoWs at [http://mathforum.org/problems\\_puzzles\\_landing.html](http://mathforum.org/problems_puzzles_landing.html)

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# The Pre-Algebra Problem of the Week Scoring Rubric

A full-page version of this file is available to the public via the Teacher Documents section of the Problems of the Week pages. Problem-specific scoring rubrics, as well as "Expected Solution" documents, are available to Teacher Members who choose to mentor their students' work using our online environment.

For each category, choose the level that *best describes* your work

	Novice	Apprentice	Practitioner	Expert
<b>Problem Solving</b>				
<b>Interpretation</b>	I do not understand much of the problem.	I understand some of the math in the problem.  I attempted part of the problem.	I understand all of the math in the problem.  I attempted all parts of the main problem.	I understand the Extra question and solved it correctly (and am at least a Practitioner in Strategy).
<b>Strategy</b>	I didn't know how to set up the problem.	I tried a strategy that makes sense, but it isn't enough to solve the whole problem.  My strategy relied on luck.	I picked a sound strategy.  I solved the problem through skill, not luck.	I used two separate strategies <i>or</i> I used an unusual or sophisticated strategy.
<b>Accuracy</b>	My work contains many errors.	Most of my work is accurate. I may have a couple of errors.  I didn't use correct units.	My work is accurate and contains no arithmetic mistakes.  I used appropriate units.	[not possible for most problems]
<b>Communication</b>				
<b>Completeness</b>	I wrote very little to explain how I solved the problem.	I included an explanation but none of my calculations. <i>or</i> I included calculations without any explanation.  I didn't explain why I did several steps.	I explained almost all of the steps taken to solve the problem.  I explained how I came up with my equations, expressions, and calculations.	I included some extra ideas or explanation about some of the concepts in the problem.
<b>Clarity</b>	My explanation is very difficult to read and follow.	My explanation isn't entirely unclear, but another student wouldn't be able to follow it easily.  My explanation is long and is written in one paragraph.  My spelling and typing errors make my explanation hard to understand.	I explained all of the steps in such a way that another student could understand.  I made an effort to check my grammar, formatting, spelling, and typing.	My answer is very readable and it looks good!  My organization makes my ideas especially clear.
<b>Reflection</b>	These items are reflective:	I showed how I checked my own answer.  I explained why I think my answer is reasonable.  I suggested a hint that I would give to another student.	I connected the problem to another problem or experience.  I explained where I'm stuck.  I summarized the process I used.	I explained why I think the problem is easy or difficult.  I <i>revised</i> and improved my work.
	I did nothing reflective.	I did one reflective thing.	I did two reflective things.	I did three or more reflective things or I did a great job with two of them.

## Teacher Support for *Bank Balances*

Each Current Problem of the Week (and consequently many in the library) includes a list of topics and pointers to related resources. Those problems included in our Write Math with the Math Forum product include alignments to many state standards and textbooks. This table is adapted from the full online Teacher Support page for this problem that includes links for all of the resources. These pages are available to members at <http://mathforum.org/pow/support/>.

<b>Topics</b> algebraic reasoning solving simultaneous equations linear functions	<b>Problems Library</b> PreAlgPoW: Mirror Musing	<b>Ask Dr. Math</b> The Idea Behind Simultaneous Equations Different Ways of Solving Systems of Linear Equations
<b>Teacher2Teacher</b> Algebra Help – FAQ	<b>Math Tools</b> Math 7: Linear Relationships	<b>Other Resources</b> Graphing Linear Functions