



Math Fundamentals PoW

The Math Forum's Problems of the Week provide non-routine constructed response problems. The Math Fundamentals problems target concepts typically learned in grades 3-5. Memberships and mentoring options are available at the individual, class, school, and district levels.

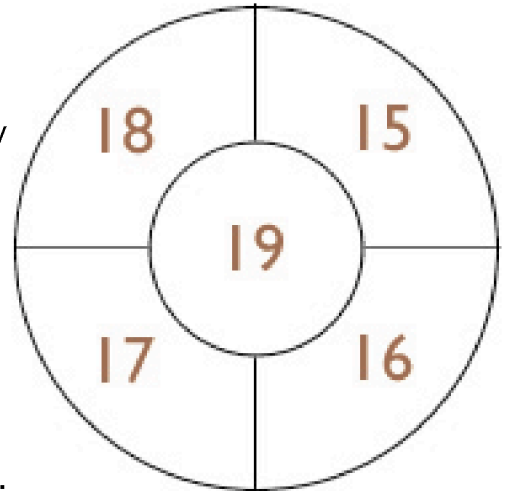
Darlene's Dart Board - to be posted March 26, 2007

Darlene challenged her friends to a game of darts on her new dart board.

Players take turns throwing darts. A player wins by scoring exactly 100 points.

1. List one combination of scores that will win the game. Explain how you found it.
2. Is it possible to score 100 points with more darts or fewer darts than you listed? Explain how you know.

Extra: Find at least two other combinations that will win this game. List them and describe your strategy for finding them.



Learn more about the PoWs at http://mathforum.org/problems_puzzles_landing.html

The Math Fundamentals Problem of the Week Scoring Rubric

A full-page version of this file is available to the public via the Scoring Guide link at <http://mathforum.org/funpow/>. 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
Problem Solving				
Interpretation	I do not understand much of the problem.	I understand some of the math in the problem. I completed 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).
Strategy	I do not know how to set up the problem.	My strategy made sense, but it isn't enough to solve the whole problem. My strategy relied on luck. My approach wasn't systematic.	I picked a good strategy. I solved the problem through skill, not luck. My approach was systematic.	I used two separate strategies <i>or</i> I used an unusual or sophisticated strategy.
Accuracy	I think I made many errors.	Most of my work is accurate. I may have one or two 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]
Communication				
Completeness	I wrote very little to explain how I solved the problem.	My explanation does not include calculations. <i>or</i> I did not explain why I did my calculations. 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 special ideas and/or patterns I discovered about the problem.
Clarity	My explanation is very difficult to read and follow.	My explanation isn't entirely unreadable, but another student wouldn't be able to follow it easily. My spelling and typing errors make my explanation hard to understand.	Another student would be able to read and understand my solution. I used correct math language. I tried to use good grammar, spelling, organization, and typing.	My answer is very readable and it looks good! My organization makes my ideas especially clear.
Reflection	These items are reflective:	I showed how I checked my own answer. I explained why my answer is reasonable. I suggested a hint that I would give to another solver.	I connected the problem to another problem or experience. I explained where I'm stuck. I summarized my process.	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 *Darlene's Dart Board*

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/>.

Topics multiplication addition odds and evens number sense	Problems Library FunPoW: Rugby Rules! FunPoW: Let the Chips Fall... FunPoW: The Sum of Four Numbers
Other Resources I've Got Your Number	Ask Dr. Math Adding Odd Numbers Adding Odd and Even Numbers