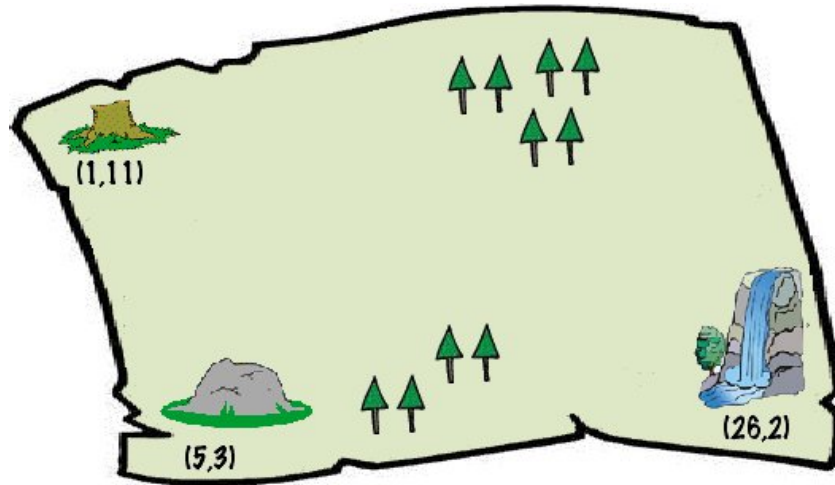


Problem of the Week: Buried Treasure

Callie was vacationing in the Caribbean when she found a treasure map made by the famous pirate Algebeard many years before:



On the back of the map was written:

Start halfway between the rock and the old stump. Walk so that the distance between ye and the stump is always the same as the distance between ye and the rock. When ye be exactly northwest of the waterfall, ye be standing on my buried treasure.

Using her algebra skills, Callie was able to determine exactly where Algebeard's loot was stashed. What are the coordinates where Callie should dig?

	Novice	Apprentice	Practitioner	Expert
Problem Solving				
Interpretation	Shows understanding of few of the criteria listed in the Practitioner column.	Shows understanding of most but not all of the criteria listed in the Practitioner column. For example, correctly finds the equation of the bisector but doesn't understand that he must find the spot on that line that is directly northwest of the waterfall.	Understands: <ul style="list-style-type: none"> what "northwest" means and that a line to the northwest has a slope of -1 that the line equidistant from the rock and stump is the perpendicular bisector of the segment joining them (though they may not use that exact phrase) that perpendicular lines have slopes that are negative reciprocals the goal is to find the coordinates where Callie should dig 	Solves the main problem and the Extra correctly, and is at least a Practitioner in Strategy.
Strategy <i>(based on the solver's interpretation of the problem)</i>	Has no ideas that will lead them toward a successful solution. Has not written enough to tell what strategy they might have used.	Picks an incorrect strategy, or relies on luck to get the right answer. For example, uses Guess and Check, either for entire solution or to solve an algebraic equation. Note that Guess and Check can be used as a way to explore the problem and its relationships, but should lead to algebra.	Picks a sound strategy—success achieved through skill, not luck. For example, might equations of both lines and solve the resulting system or might find the equation of one line and graphically represent the other to find the point of intersection.	Uses two separate strategies or one unusual or sophisticated strategy.
Accuracy <i>(based on the chosen strategy)</i>	Has made many errors.	Has made several mistakes or misstatements. For example, loses track of minutes vs. hours.	Makes few or no mistakes of consequence and uses largely correct vocabulary.	[Generally not possible – can't be more accurate than Practitioner.]
Communication				
Completeness <i>(an incorrect solution can be complete)</i>	Has written very little that tells or shows how they found their answer.	Submitted explanation without work or work without explanation. Leaves out enough details that another student couldn't follow or learn from the explanation.	Defines variable(s). Shows equations, formulas, and calculations used and explains the rationale behind them. Explains the logic used to decipher which is the false statement.	Adds in useful extensions and further explanation of some of the ideas involved The additions are helpful, not just "I'll say more to get more credit."
Clarity <i>(incomplete and incorrect solutions can be explained clearly)</i>	Explanation is very difficult to read and follow.	Explanation isn't entirely unclear, but would be hard for another student to understand. Explanation is long and is written entirely in one paragraph. Explanation contains many spelling and typing errors.	Explains the steps that they <i>do</i> explain in such a way that another student would understand (needn't be complete to be clear). Makes an effort to check formatting, spelling, and typing (a few errors are okay).	Format and organization make ideas exceptionally clear. Answer is very readable and appealing.