Each WA is worth 10 points total. Work right on these pages. You can work together, with a tutor, or with me, but NEVER copy. This WA is for a grade, so dishonesty or cutting corners may earn a 0 for all involved.

1. *[2 pts - 1 each]* Some 5th graders are trying to figure out whether the number 823 will appear in the sequence 5, 9, 13, 17, 21, 25, 29, 33, 37, 41, 45, 49, 53, ... As they work, they attempt to explain to each other. Classify each (partial) explanation as best attempting to explain HOW, WHY, or not doing either very well. ("Both" is not an option here.) Also explain in a short sentence what features of the student's explanation fit your choice.

   (a) Gan says: "I think it won't show up because the numbers ending in 3 in the pattern all have an odd number in front."

   (b) Potta says: "We're skipping by 4, and I think it will show up because if you count 5, 6, 7, 8, all the way to 823 without skipping, then you can divide that difference by 4."

2. *[2 pts - 0.5 each]* State Polya's Four Steps in order, then for each, state (in a complete sentence) one deeper quality to be aware of about that step or about performing it.

3. *[1 pt - 0.5 each]* Which of Polya's Four Steps seems to be illustrated most strongly in each instance below? (Answer by giving the step number and stating the step in words.) No explanation required.

   (a) Laurelin isn't sure how to set up the algebra to solve a problem, but that's what she wants to try.

   (b) Shue is writing some random guessing and checking to solve the same problem as Laurelin.

4. *[4 pts - 1 each]* For each separate part below, name a DIFFERENT problem-solving strategy among those we've studied that could reasonably be attempted to solve it. Also justify each choice in a sentence, referring to general characteristics necessary for that strategy. Take care to tell "WHY to choose, not HOW to use." **Don't actually solve the problems.**

   (a) Yasmin arrived home from play practice at 5:25 P.M. The walk home took 15 minutes. Practice began 20 minutes after the final bell and lasted for a 50 minutes. When did school end?

   (b) Katy earns $19 per hour on weekdays, time-and-a-half on the weekend, and double-time on holidays. She recently worked 6 hours on Thursday, 5 hours on Saturday, and 9 hours on New Year's Day, a holiday. How much money did Katy earn in all?

   (c) Kelly is making bracelets that have five colorful beads in the center. The beads are red, yellow, green, orange, and blue. She always uses either 2 or 3 red beads for each bracelet. If she then has the remaining beads be all the same color, how many different looking bracelet designs can she make?

   (d) Tom, Andrew, and Gina have different favorite colors among red, yellow, and blue. No one's favorite color has the same number of letters as their name. Gina doesn't like red. What is Tom's favorite color?

5. *[1 pt - 0.5 each]* Choose a problem among #4(a)-#4(d) that would NOT be suited to each strategy below. You may reuse a problem if you like. No justifications needed.

   (a) Guess and Check

   (b) Algebra/Write an Equation