Understanding Student Resistance

Part 1: Conference Proposal

The presentation describes a case study of two resistant students, John and Rachel, enrolled in pre-calculus classes at Air Force Academy High School.

In my third period pre calculus class, there is a student called John whose ability level in mathematics is very high, but who is re-taking the class due to having failed it last year due to poor attendance. John consistently comes into class complaining of being tired and frequently puts his head down on the desk after finishing the work that has been assigned (though sometimes before finishing, too). While he is working independently, he remains alert at least until finished with his assignment. But during whole-class activities like bell ringers or review sessions, he almost always goes on his phone, starts reading a book, or puts his head down all together. This contradicts his behavior when he comes into our room each day at lunch to practice Khan Academy modules on a laptop in preparation to retake the SAT. During these sessions, he is alert, asking questions about the problems, and works diligently through the period. Outside of our room, John can be seen daily walking through the halls carrying a large book, reading it as he walks and almost bumping into other students.

Through one particular review session, John sat at his desk, typing something on his cell phone while the rest of the class went up to the board to write their answers from a worksheet done the day before. After a prompt from Ms Vaughn, he collected his paper and went up to the board to put up his assigned problems. He went to the first area assigned to him on the board, and Ms Vaughn told him to pay attention “especially to 15 and 16”, which he had been assigned on the other side of the board. He sighed, let his arms go limp by his sides, slumped, and moaned “why” as he walked over to the places where the other problems had been assigned,

but started smiling once he was writing and made a joke with the boy writing next to him. After putting up answers from most of his assigned problems, he remained at the board looking at the work of two other students and then returned to his final problem. After finishing, he returned to his desk and sat down, picking up his phone right away while some of his classmates finished putting up their solutions. He continued to read while the class discussed the solutions that had been put on the board.

The study also follows Rachel, a student in a seventh period pre calculus class who could be described by some as having a bad attitude in class. Her teacher semi-affectionately refers to her and her trio of friends as “the mean girls” due to their particular brand of classroom resistance. When given instructions that differ from normal classroom routines, Rachel is observed rolling her eyes, making exasperated slouching motions with her shoulders, and sometimes audibly groaning. Seating charts consistently separate her from her two “mean girl” counterparts, Mona and Natasha, which could be the root of behaviors such as getting up and walking across the classroom before the bell rings to gossip with a friend, or talking across the room. When seated next to any of the other students in the class, Rachel will talk, laugh, and sometimes make jokes at the expense of the people she is sitting with. During independent work sessions, she frequently doodles on notes and assignments, and has been observed visiting off-task websites or doing work for other classes during Khan Academy work times in the computer lab.

In one particular instance, Rachel was supposed to be taking a REACH Beginning-of-Year Assessment required by the district. This was presented in the form of a single, multi-part task about constructing a roller coaster using a graph and several equations. The class was set up at individual desks, and students were supposed to work silently for the entire class period. Rachel sat at her desk and worked for a few minutes, answering the first two

problems on the test (both were review content from Algebra I). For the rest of the hour, she drew hearts on the margins of the paper, drew her name in bubble letters at the top, and spent a large amount of time drawing squiggle patterns in an alternating grid on the coordinate axes that were provided for graphing. While circulating around the room, I frequently stopped at Rachel's desk and reminded her to keep trying, to see if there was one more problem she knew how to do, or to at least start on one of the problems and see if she could work it out. Each time, she responded with a smile and the declaration that "I'm finished" and continued to draw.

A fair amount of research has been done into student resistance in classrooms, the root causes of resistance, and how educators can take that information to channel the resistance to create a more student-centered and culturally responsive teaching practice. The panel discusses an exercise in case reasoning that takes this research and applies it to the two students mentioned above, and will outline the results as an educators attempts to channel student resistance into a productive force in her classroom. The panel will also provide resources and suggestions that attendees can try in their own classrooms.

Part 2: Hypothesizing Explanations for Resistance

Looking At: John

Literature Review

John displays several behaviors in class that could be explained by literature on student resistance. During class, John frequently finishes his work quickly and then puts his head down, opens a book, or starts reading comics on his phone for the remainder of the work time and, if no intervention is taken, until the end of the class period. The disengagement behaviors of putting his head down or focusing on other things could potentially be explained by John's

desire to revert to his brain's low-effort and automatic System 1 processes, instead of putting forth more effort to engage in System 2 behaviors like complex thought, reasoning, and questioning (Toshalis).

This hypothesis is challenged, however, by the fact that his work is completed before he begins engaging in the resistant behaviors. If he was trying to avoid putting forth cognitive effort during the class, he would not do the work first. The fact that his work is completed quickly, accurately, without showing any steps or computations, and in pen, could suggest that the content being assigned to John in class is too easy and does not challenge him. This hypothesis is further supported by fact that John has taken the class before and failed, not for lack of ability but for insufficient attendance (staying home from school to sleep after staying up all night reading or playing video games). He also has the highest standardized test scores in the school, indicating high achievement in mathematics. Both of these facts continue to support the hypothesis that he is bored with the material and not being challenged, which could be contributing to his resistance.

My final hypothesis for John's resistance has to do with the types of media that he engages with instead of paying attention in class. John always has his nose in a massive fantasy novel, and has told me that he enjoys the books because they're exciting and allow him to imagine himself in other worlds. When I've seen him on his phone in class, my glances over his shoulder have revealed that he is most often looking at comic strips and manga that portray fantastic creatures and monsters. The fact that John engages so intently and joyfully with these imaginary places and creatures could indicate that he enjoys engaging himself with hypothetical and creative thinking beyond what is happening in front of him (Toshalis). In a math classroom where, admittedly, many of our examples are closed-ended and involve the use of finite processes, John's creative mind is probably not being engaged by myself or the class material;

this could contribute to his desire to use his books and phone to engage his imagination, instead.

Class Work and Test Data

John's test data shows that he is one of the relatively few students at Air Force who has achieved benchmark scores on his PSAT and SAT tests, and scored the second highest in the school on the SAT Math subsection. Despite his high marks, John can consistently be found in my classroom at lunchtime with a chromebook, practicing on Khan Academy before he retakes the SAT for a final time this fall. John's classwork is typically correct and concise. He writes his answers in pen and rarely shows any work. This indicates that not only does John understand the problems we do in class, but that they come so easily to him that he can do them mentally or using only a calculator, and with a high degree of accuracy. This coupled with the fact that John has taken the class before and failed for attendance reasons (and his high marks on standardized tests) probably indicates that he is bored with the material and not being challenged, which could be contributing to his resistance.

My Role In John's Behavior

Weinstein and Novodvorsky encourage us to consider the following questions in analyzing our interactions with students and their impacts on student resistance: How do I welcome students into the classroom? What are some ways in which you build caring relationships among your students? What is the purpose of the individual seat work you assign? Up until two weeks ago, my interactions with John in class were limited to a brief greeting at the door as he came into the room, and ill-fated attempts to regain his attention during activities and notes. I employed a variety of classroom management techniques, from tapping on his desk to private verbal interventions to cold calls during class discussions. I made little attempt to actively build caring

relationships among students, relying on my mentor's seating chart designed to limit disruption and only utilizing group work as a means for mathematical practice and not for genuine relationship-building. The purpose of the individual seat work I assigned was for individual practice in skills, many of which I suspect John had already mastered. As for group work, my aim was for students to work collaboratively and gain other perspectives when interpreting data sets. During this work, John collaborated with his groupmates enough for them to reach a consensus on calculations and sometimes divide up responsibilities over parts of a problem, but never on genuine idea sharing. This could have been due to a poor structuring of tasks on my part, making them high cognitive demand but not necessarily group worthy, and leading to John and others having a viable option to complete the assignments mostly on their own.

What Does John Stand To Gain

From his resistance, John stands to gain several things. If the class is, as I suspect, truly too easy for him and may feel like a waste of his time, the resistance might align with Toshalis's suggestions of attempting to exercise creative freedom and abstract thinking through sources such as his book or the things he would read on his phone. Another possible hypothesis, supported by John's refusal to do any "extra" work like showing steps or explanations to go with his correct answers, is that John was uninterested in the work we were doing in class. If this was the case, John would stand to gain what he would probably consider to be a better use of his time. He may also have been reverting to processes that are automatic and low-demand, such as reading or napping, and could have been allowing his System 1 brain to take over during class, allowing him to pass the time with less effort than if he was engaged in the lesson. Finally, John stands to gain skills from his reading and phone use that he values more highly than skills he is learning or practicing in the class. In one of my conversations with John, he expressed interest in writing a story or a novel, and is considering going into a professional field

that would involve writing, like freelance journalism or editorial work. Several authors assert that reading is an invaluable practice to improve one's writing, since it exposes readers to the work of others who are often better than them or who write with different styles. By reading so insatiably in class, John is developing skills and knowledge that will help him succeed in writing - this is likely far more valuable and important to him than finding the population standard deviation of a set.

Looking At: Rachel

Literature Review

The piece of literature I feel is most important to review when considering Rachel and her resistance in class is research regarding the Fundamental Attribution Error (Grinnell). In discussions with my mentor, concerns about the behavior of Rachel and her group of friends are consistently met with comments like "Ahh yes, the Mean Girls" and explanations of "I think that's just how she is." This is, potentially, a classic example of fundamental misattribution as Rachel's resistance is being attributed to an inherent bad attitude and not to anything situational or having to do with the context of the class. Rachel has a tendency to rephrase things in her own way during class and, when her thoughts are confirmed as an accurate way to look at the concept being discussed, typically reacts with a smirk or a hand motion that suggests thoughts along the lines of "why didn't you just say it like that the first time around". These behavior could lead me to hypothesize that Rachel's resistance is aligned with Toshalis's idea that students want to engage their own hypothetical thinking rather than be confined to the teacher's interpretations. Toshalis also suggests that students may possess poor self-regulating skills, a piece of research that will be examined further when I look at Rachel's test data and class work.

Class Work and Test Data

The hallmark of Rachel's classwork and tests are that they are consistently returned covered in doodles. This is a pattern in Rachel's work that has been evident since student surveys and diagnostic tests on the first day of school; every time she would complete an assignment, come to a section she didn't understand, or seemingly just lose interest, doodles of hearts, squiggles, or just shading in areas of her paper would consume the rest of her time. This behavior leads me to hypothesize that Rachel is engaged with resistance due to poor self-regulating skills, as she has been observed doodling instead of doing assignments that, based on formative assessments, I know are well within a zone of proximal development where she should be able to work through the rest of the problem. An alternate hypothesis could be that she has developed a fixed mindset and, instead of pushing through problems that challenged her, she shut down and doodled instead. Finally, a third possibility could be that Rachel has a desire to engage in creative thinking that is not being sufficiently provided in class and thus uses doodling as an outlet for that creativity.

My Role In Rachel's Behavior

To examine my role in Rachel's behavior, I will look at several of the same questions from Winstein and Novodvorsky that I addressed in looking at John's behavior. I greet Rachel at the door to the classroom every day much like I greet every other student. In looking to create caring relationships, I strategically seat Rachel next to students who I know are diligent workers but with whom her personality would mesh with, and they typically are able to find an acceptable balance between quiet socialization and attention to their class work. My individual work designed to give students practice keeps her engaged for the first example problem, though she typically descends into talking or doodles midway through the second. This could indicate that

fewer, more meaningful practice problems may be a better route. Group work is structured in a way in which students are supposed to share ideas and perspectives though, much like with John, the questions may leave room for work to be divided and so that students collaborating is only for the purpose of reaching a consensus on answers.

What Does Rachel Stand To Gain

Rachel stands to gain several things from the various acts of resistance that she engages in. Doodling, if she is looking for a creative outlet, provides something for her to do in class that is stimulating, engages her System 1 brain, and that she probably finds pleasurable when she is not interested in the class work. In addition, her other off-task behaviors like socializing, using her phone, or making jokes could all serve to provide her with social contact with peers, strengthening connections and building up her reputation and connections within the class and the school.

Part 3: A Course of Action for Engaging Rachel

Hypothesis I: Rachel wants to be engaged with her own hypothetical thinking and not just aligned with the teacher's instruction

The first hypothesis I presented in Part 2 was the possibility that Rachel wants to be engaged with her own hypothetical thinking and interpretational work on the mathematics, instead of being restricted to the ideas that I present. This hypothesis was based on Toshalis and his description of students desiring to engage with mathematics independently of the teacher in order to learn, and evidenced by some of Rachel's reactions to my teaching. Rachel has a tendency to rephrase things in her own way during class and, when her thoughts are confirmed as an accurate way to look at the concept being discussed, typically reacts with a

smirk or a hand motion that suggests thoughts along the lines of “why didn’t you just say it like that the first time around”.

If this is the case with Rachel, I suspect that other students in the class may be experiencing similar frustrations. For that reason, I would choose to alter my instruction for the whole class in order to address not only Rachel’s resistance, but the attention of all other students in the class too. It has been shown in research on mathematics education that students’ understanding can benefit from “inventing activities,” in which a problem is presented without a definite solution method, and students must invent their own mathematical processes that would make sense to complete the task (Himmelberger & Schwartz). These inventing activities engage students’ problem-solving skills, prior knowledge of mathematics, hypothetical thinking, and creativity within the context of a specifically-directed mathematical task. By incorporating some of these inventing activities into my lessons, I would remedy a possible cause of Rachel’s resistance while also promoting valuable discourse and mathematical thinking for the rest of the class too.

Despite the benefits, this course of action is not without tradeoffs. While research has shown that this type of inquiry-based, inventive, concept-oriented instruction increases students’ understanding and retention of material (Himmelberger & Schwartz), it is time consuming. Especially in a class where students are still developing skills like working in groups, remaining on task, and thinking creatively in mathematics, one of these activities could take two or three class periods to get through. While some would argue that the extra time is worth the payoff in student understanding, the class already tends to get behind and there is a curriculum that needs to be covered before certain points in the year. Making sure activities like this are successful involves factors like careful groupings of students and availability of appropriate tools for exploration; as a novice teacher, I am still working out how to seat students properly and do

not have an arsenal of tools and resources accumulated in the classroom. Finally, authentic and engaging inventing activities require lots of planning, anticipation, and research on the part of the teacher. This is not unreasonable once in awhile, but to do these kinds of activities every day or every week would soon become draining on my time.

Hypothesis II: Rachel doodles in class because of poorly-developed self-regulation and executive functioning skills

Another hypothesis presented in Part 2 was that Rachel may doodle during class because she needs to further develop self-regulation and executive functioning skills. During class and individual work time, Rachel frequently quits problems and assignments quickly, and doodles hearts, squiggles, or other seemingly mindless shapes and patterns on her paper until work time ends. Toshalis suggests that Rachel may be engaging in this resistance due to poor self-regulating skills, as she has been observed doodling instead of doing assignments that, based on formative assessments, I know are well within a zone of proximal development where she should be able to work through the rest of the problem.

One way to approach this dilemma would be to scaffold Rachel in the development of self-regulatory skills. This could be done with things like checklists or to-do lists on the board, more clearly-outlined steps on assignments, or inserting tiny victories and checkpoints into classwork and assessments to encourage her and other students to keep going. While this could help encourage sustained effort on tasks and assessments, it has drawbacks in that there is the potential for explicit outlining of steps to lower the cognitive demand of a task. If your aim is to help students make connections between processes and procedures, that often involves students being able to generate intermediate steps. Additionally, clearly outlining steps in an assignment could lower the cognitive demand by restricting students to just a few entry points or solution methods that the teacher has anticipated. This would restrict students' hypothetical

thinking and reasoning skills in figuring out how to approach a problem and could prevent them from truly “doing mathematics.”

Another possible course of action would be to try to engage her resistance by channeling her doodling into something more productive. Author Sunni Brown argues that doodling is “a spontaneous movement by the mind or body to help yourself think” (Brown). I hypothesize that Rachel’s use of doodling in class is currently a movement to help herself think about things unrelated to class - it is a tool that she uses to “zone out.” To correct this, there are several steps I could take to redirect this action to be a movement to help Rachel think *about math.* Various tools from art and doodling can be used when taking notes, figuring out potential solutions to a task, or presenting work to an audience in a way that is engaging and clear (Johnson). By providing explicit instruction and practice opportunities in using doodling skills to aid in mathematical thinking and problem solving, Rachel could learn how to continue the activity of doodling during class but in a way that helps her to learn and understand class content. The advantages to this course of action would be that students would have a new way to engage with and process not only math, but content from other classes too and could use communicative doodling skills in a wide variety of contexts. The downside is that instruction in doodling takes up valuable class time that could be spent on content. The drawing aspect of it could distract from the mathematics if students devote too much effort to the aesthetic and not enough to the content, and it could also potentially enable students to persist in off-task doodling in class and use communicative doodling merely as an excuse to keep them from being reprimanded.

Selecting a Course of Action

The course of action that I plan to try first in my classroom is to implement inquiry-based and invention activities into my teaching. Not only will this course of action (hopefully) assist with

Rachel's performance, but will allow the rest of the class the same opportunities to grow and learn without singling her out. These activities could be implemented with reasonable frequency, once a week or every two weeks, and the benefits in understanding and retention of information will hopefully outweigh the tradeoffs in instructional time.

Part 4: Evaluating Actions Taken

In Part 3, I developed three potential plans of action to engage Rachel in class better: have lessons that involve "inventing activities" to encourage hypothetical thinking (Himmelberger & Schwartz), provide checklists or to-do lists in order to scaffold self-regulating skills, and be purposeful in using Rachel's affinity for doodling as a tool with which to think about mathematics (Brown). I had originally planned to attempt to implement inquiry-based and invention activities first, as I believed that they would engage not only Rachel but also the rest of the class.

In order to plan an invention activity that would actually engage Rachel in the types of learning that she likes to do, I decided to seek out some feedback from her and the rest of the class. A routine we utilize at Air Force and in my classroom is that on Fridays, the typical content-based bell ringer is replaced with a short activity to support social and emotional learning; I took this opportunity to distribute a mid-semester feedback form where students could reflect on how they like to learn, and anything that has been frustrating to them about my class so far or what has worked well. Rachel's answers on this sheet were enlightening to me. A blank copy of the questionnaire can be found in Appendix A.

Rachel perceives herself as being highly involved in class (self-scoring a 9 out of 10) because she "answer[s] questions and volunteer[s]," but thinks that her performance could be

improved if she would “be more lively not as tired [sic].” She makes no mention of the issues that I have perceived with her participation (zoning out, doodling, or being overly chatty with friends). She cites that there’s “nothing really” that I could be doing to help her be more involved in class, and that it’s frustrating to her “when [she doesn’t] understand” but she enjoys class “when it is easy to understand” and where the activity is “like a race.” She likes to learn by doing activities that are “visual and step by step,” and dislikes learning by “someone just being like here it is now do it.” She feels that it’s a waste of time when teachers focus on material that she “won’t need it [sic] later in life” and it stresses her out when teachers “yell + blame the students. Overwhelm us” (Mid-Semester Check In). I felt that her responses to my questions meant that she would respond well to an invention activity with a visual component and a competitive aspect, though she may resist the idea of invention activities as a whole because they are, by nature, a mathematical task where students are given a problem and instructed to invent their own solution without any prior instruction on the process.

The topic we were covering in class was data analysis on two-variable sets, particularly using a scatter plot and line of best fit. When students had drawn lines of best fit for example problems, there had been a lot of variation in their graphs despite all using the same data set. I believed it was important for students to be able to make decisions about whether a line of best fit would be suitable for making accurate predictions and how to decide whether one line was better than another. That would be the basis for my “invention activity” (Himmelberger & Schwartz). In an attempt to reconcile with Rachel’s dislike of activities that are given without much guidance and to provide a real life context in which this skill would be used, we spent a day as a class examining a data set of crime rates in Sweden over two decades, that police forces and civil planners use to make predictions about crime activity that will happen in the country in the future; the task and the data were adapted from a peer-reviewed statistics activity

I had previously examined in a capstone class (Hall & Lingefjärd). Students first made predictions about the crime rate in 2010 based on a given set of data from 1970 through 1990. We then split into small groups for students to create a line of best fit for the data and find its equation. All the groups shared out the equations for their lines of “best fit” and all were displayed on the board. For the invention aspect of the activity, each group was to take their own line and four of their peers’ lines, graph them all on a provided handout with scatter plots, and create a way to determine which line was the best fit for the data. Artifacts that needed to be turned in at the end were all four of their graphs, scores assigned to each line, the method by which the group arrived at their scores, and a ranking of the lines from best fit to worst, based on the scores they gave. The task card for this assignment can be found in Appendix B.

This activity matched my plan from Step 3, as it allowed students to have creative freedom in deciding the criteria that they wanted to use and what they thought would be important in deciding which line was the best fit. It also addressed the hypothesis created in Step 2, which claimed that Rachel’s resistance is aligned with Toshalis’s idea that students want to engage their own hypothetical thinking rather than be confined to the teacher’s interpretations (Toshalis).

During the lesson, Rachel’s engagement improved for much of the work time but did not last through the entire class period. She was seated in a group with several of her friends (my seating chart had taken a temporary leave of absence that week) and they chatted and laughed while doing the first part of the activity where they graphed their peers’ lines on provided scatter plots. A few minutes into the hour, Rachel raised her hand while continuing to talk to the other girls at her table. I went over to the group and she expressed that “we don’t know what to do”. I took a minute to re-explain the directions to them, drawing a comparison to the bell ringer activity we had done that day (giving scores to several childrens’ drawings of fish for a

hypothetical art competition and providing justification for their criteria and the scores that they gave each piece). Once everyone understood their next steps, the group set to work and I observed them discussing the task, resolving disagreements, and making notes on their paper for the next several minutes. The next time I circled around to their group, the girls were giggling again and a hand turkey had appeared at the bottom of Rachel's paper, though her explanations were finished and two other girls at the table were still actively writing parts of the assignment down on the handout. I re-approached the group and asked them to fill me in on the work they had done so far, asking clarifying questions and identifying places where I'd like them to be more specific or to consider scenarios that would lead to more than one line getting the same score in their system. This pushing for more information was met with frustration by the group, and I observed both Rachel and the girl seated next to her, Sophie, rolling their eyes. Sophie also made an exasperated "ugh" sound and slumped a bit in her chair. Despite these negative physical and verbal reactions, the group made the changes I recommended and provided more detail in the explanation of their choices. In the end, the group descended back into talking for the last several minutes of class and, when I questioned them about whether there were any more places where they thought they could provide more detail, responded with a confident "no." Later when I examined work from the entire class, Rachel's group stood out as the one with the most specific criteria with the most detailed explanations.

On the basis of the evidence discussed above, I think my plan was moderately successful. Rachel (and most of the rest of the class) worked on the assignment without much complaining or distraction until they felt they were finished. With the exception of the instance where the girls were annoyed with my probing for more information, attitudes toward the task seemed generally positive and there was little complaining. The students came up with a lot of

the same criteria across their groups, which was rooted in our class discussions about lines of best fit, but most created their own additional criteria that varied slightly from group to group. In terms of engagement with class tasks, my current interpretation is that while invention activities were met with some displeasure at having to think harder about their explanations, everyone in the class (including Rachel) was more actively engaged with the material than they typically are during lectures or while doing practice problems or Khan Academy. I believe that engaging students' creativity and hypothetical thinking skills through this task did help overcome some resistance and lead to a better learning experience.

An interesting result of this activity, which I did not expect, was a re-examination of my hypothesis regarding Rachel's doodling. The fact that Rachel drew a hand turkey at the bottom of her paper while the group was still working could have been interpreted as a disengagement; however, this is challenged by the observation that she was finished with her writing and it was evident that the group had concluded their discussion recently based on the fact that two girls were still writing. Using this evidence, I would amend my hypothesis to think that Rachel actually does, at times, use doodling as a "spontaneous movement by the mind or body to help [her] think" about mathematics (Brown) because she was drawing and engaging with the task simultaneously. Because of this, I will hold off on my potential plan of action to purposefully engage doodling as a thinking and note-taking tool while I observe more intentionally whether the doodling in my class more typically serves as a distraction or as an aid.

Appendix A: Mid-Semester Check In Questionnaire

Rate your participation in this class:

1 2 3 4 5 6 7 8 9 10

I gave myself that rating because:

What's something I could do to improve my participation in this class?

What is something Ms. Johnson could do to help me be more involved in class?

Something that's frustrating to me about this class is:

Something I enjoy doing in this class is:

I like to learn by:

I don't like learning by:

I enjoy activities in class where:

Something teachers do that I feel is a waste of time or not helpful to me is:

Is there anything teachers do in class that stresses you out?

Appendix B: Sweden Crime Rates Invention Activity

You have been given the following data on the number of crimes committed per year in Sweden, and the equations of four possible lines of best fit.

1. Graph each line of best fit on the attached scatter plots.
2. Invent a way to assign each line a score based on how well it fits the data.
3. Use the scores to rank the four possible lines of best fit from **best fit** to **worst fit**.
4. Create a written explanation of your ranking system. Make sure your instructions are clear, specific, and include your reasoning for each step you took.

Year	Number of Crimes (in thousands)
1970	656
1972	691
1974	675
1976	799
1978	803
1980	928
1982	984
1984	983
1986	1,095
1988	1,086
1990	1,219

Rankings: Scores:

1. Best fit: _____ _____
2. _____ _____
3. _____ _____
4. Worst fit: _____ _____

Use this space to explain the method you used to assign the scores:

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Task 2.3: Crime Development

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