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**Assessment: Algebra Bootcamp for Derivatives!**

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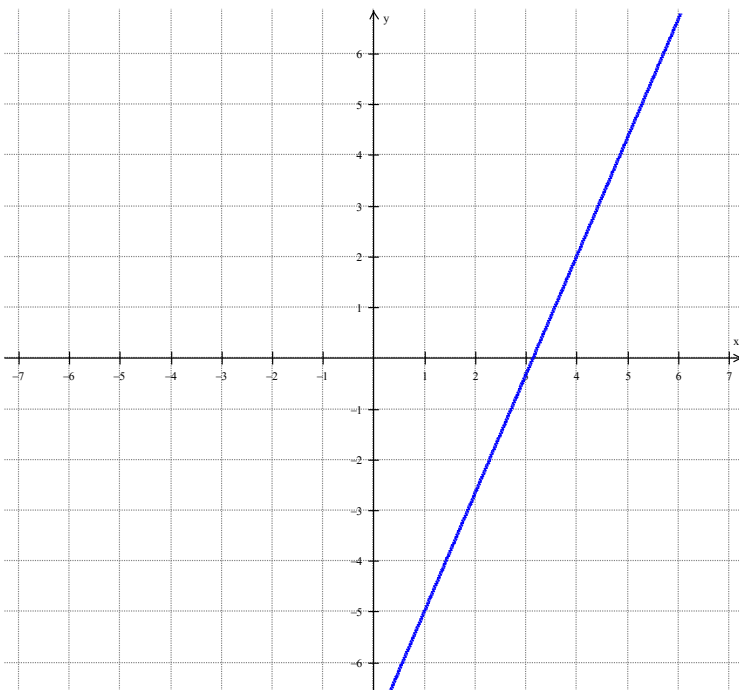
Remember to get full credit, you need to show all work, clearly and neatly. Remember, this isn't just about you getting the answer, but you *showing someone else* how you got the answer. I will include the rubric at the end of this assessment so you can review what is expected of you.



**You may use a calculator on this assessment** – however you *must* show all work for credit. If you get an answer without showing work (e.g. find a slope without showing work), you will not be communicating your understanding.

A. Part 1: Write the equation of the line that goes through  $(-2, 5)$  and  $(-17, 10)$ . You may leave your answer in standard, point-slope, or slope-intercept form. You must, however, simplify fractions.

Part II: Write the equation of the line graphed below.



Part III. Rationalize the numerator:  $\frac{\sqrt{2x+2h}-\sqrt{2x}}{h}$

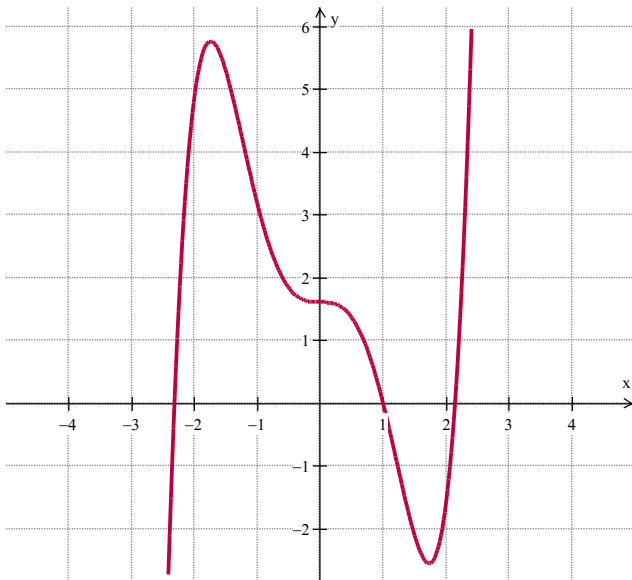
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B. Part I: If  $f(x) = \frac{1}{x+1}$ , calculate the *average ROC* over the interval  $[2,7]$ . Please show all work. Explain what you're doing (don't just give me all calculations – say what the calculations represent).

Part II: For the following function, calculate the average rate of change on the interval  $[-2,1]$



Part III: Explain to someone who is confused precisely what *average rate of change* means. (You may use diagrams, tables, pictures, candycanes, whatever you need! Just be clear!)

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C. Part I: Below are three scenarios. After reading them, choose the one where the conclusion is the most certain. Explain why you are most certain about this conclusion (more than the other scenarios), and also **explain where the speed in the conclusion came from.**

<p>Scenario A:</p> <p>You look at your car's dashboard. There is a broken speedometer. At 5:12:00pm, the odometer reads 25,121.25 miles. At 5:15:00pm, the odometer reads 25,123.51 miles.</p> <p>Conclusion: At 5:12:00pm, you are traveling at 45.2mph</p>	<p>Scenario B:</p> <p>You look at your car's dashboard. There is a broken speedometer. At 2:10:00pm, the odometer reads 54,231.22 miles. At 2:10:03pm, the odometer reads 54,231.29 miles.</p> <p>Conclusion: At 2:10:00pm, you are traveling at 84 mph (for shame!)</p>	<p>Scenario C:</p> <p>You look at your car's dashboard. There is a broken speedometer. At 12:56:00pm, the odometer reads 242 miles. At 3:56:00pm, the odometer reads 404 miles.</p> <p>Conclusion: At 12:56:00pm, you are traveling at 54 mph.</p>
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Part II: For your scenario, the conclusion is not *totally* certain/definite. Why aren't you totally confident in the conclusion?

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**INTEGRITY STATEMENT:**

On my personal integrity, I have not given, nor received, nor witnessed any unauthorized assistance on this exam."

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**(signature)**

If you can't sign this in good conscience, please don't. Come speak to me.