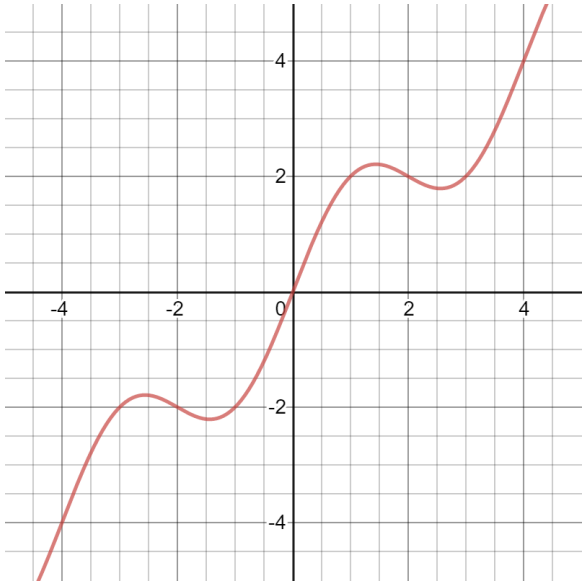
Directions:

- Do only the problems that you need to take and feel ready to take. If you have already earned Mastery on a Learning Target, do not attempt a problem for that Target! You can skip a Target if you need more time to practice with it, and take it on the next round.
- Each Learning Target problem is to be written up on a separate sheet, scanned to separate PDF files, and submitted to the appropriate Learning Target "assignment" on Blackboard. **Please do not submit more than one Learning Target in the same PDF, and make sure you are submitting it to the right Blackboard area.**
- If you are handwriting, submit your work by **scanning your work** using a scanning app or scanning device; **do not just take a picture** but scan your work to a clear, legible, black and white PDF file of size less than 100 MB. **Work submitted as an image file (JPG, PNG, etc.) will not be graded.**
- Please consult the grading criteria found in the Information on Learning Targets and Checkpoints document found in the *Learning Targets* area on Blackboard prior to submitting your work, to make sure your submission has met all the requirements.
- Please use the approved resources to double-check your work against errors prior to submitting your work.

Learning Target 1: *I can find the average rate of change of a function and the average velocity of an object on an interval.*

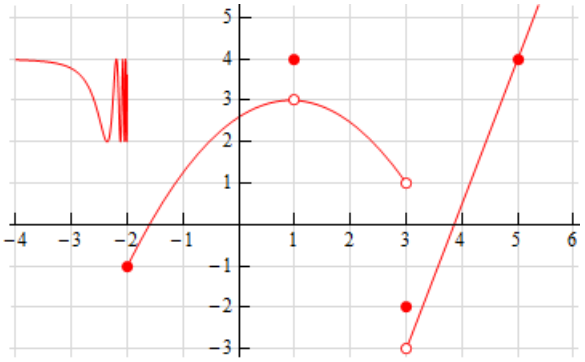
1. Let $f(x) = 5 + \sqrt{x}$. Find the average rate of change in f on the intervals $[1, 5]$ and $[4, 2.01]$.
2. Let $g(x)$ be the graph shown below. Find the average rate of change in g on the intervals $[2, 4]$ and $[-4, 0]$.



Learning Target 2 (Core): *I can find one- and two-sided limits of a function at a point and at infinity using numerical, graphical, and algebraic methods.*

1. Using only algebra (no graphs or tables), evaluate $\lim\limits_{x \to 2} \dfrac{x^2 + 3x - 10}{x - 2}$.

2. The function $h(x)$ is shown below. State the values of each limit given below the graph. If the limit fails to exist, respond with "does not exist".



(a) $\lim_{x \to -2^+} h(x)$

(b) $\lim_{x \to 0} h(x)$

(c) $\lim_{x \to 3^-} h(x)$

(d) $\lim_{x \to 3} h(x)$

Learning Target 3: *I can find the derivative of a function (both at a point and as a function) and the instantaneous velocity of an object using the definition of the derivative.*

Consider the function $f(x) = 2x^2 - 3x + 6$. Set up the limits that would compute $f'(2)$ and $f'(x)$. Then use the limit to find $f'(2)$.