

Please read directions carefully. Raise your hand if you are not sure what a problem is asking. You must explain your work thoroughly and unambiguously to receive full credit on questions or parts of questions designated as **Work and Answer**.

No calculators or notes are allowed on this quiz.

Multiple Choice. (4 points) Circle the letter of the best answer.

A *critical number* of a function $f(x)$ is an x -value c in the domain of f for which either:

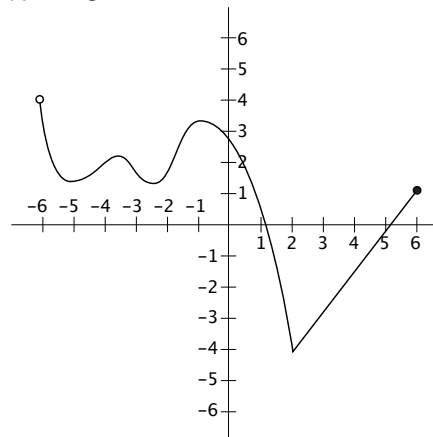
- $f'(c) = 0$ or
- $f'(c)$ is undefined.

The critical numbers of the function $f(x) = x^3 + \frac{3}{2}x^2 - 6x - 10$, whose derivative is $f'(x) = 3x^2 + 3x - 6$, are

- | | |
|-------------|------------------|
| (a) 1 only | (c) -2 and 1 |
| (b) -2 only | (d) -2, 1, and 0 |

Graph. (8 points) For the function $g(x)$ shown below, fill in the correct answers. Approximate answers are okay. If there is no answer to a question, write “NONE.”

1. $g(x)$ has local minimum(s) at _____.
2. $g(x)$ has local maximum(s) at _____.
3. $g(x)$ has an absolute minimum at _____.
4. $g(x)$ has an absolute maximum at _____.



Work and Answer. (8 points) You must show all relevant work to receive full credit. You may use the back if you need more room.

Find the absolute minimum value of the function $g(x) = 3x^2 - 2x + 1$ on the interval $[0, 4]$. Be sure to explain how you know your answer is correct.