

# QUIZ 3 - MATH 112

Friday, January 31

YOUR NAME: \_\_\_\_\_

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Read each problem **very carefully** before starting to solve it and do only what is asked. Each problem is worth around 5 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. [4 points] Compute and simplify the difference quotient of  $f(x) = 2x^2 - 5x$  at  $x$ .

2. [4 points] Sketch the graph of the function

$$f(x) = \begin{cases} -x - 1, & \text{if } x < -1, \\ -x^2 + 2, & \text{if } -1 \leq x < 1, \\ x, & \text{if } x \geq 1. \end{cases}$$

3. [8 points] Compute the following limits:

(a)  $\lim_{x \rightarrow -3} \sqrt{2x + 15} =$

(b)  $\lim_{x \rightarrow 5} \frac{x - 5}{\sqrt{x - 1} - 2} =$

(c)  $\lim_{x \rightarrow 2} \frac{\frac{1}{2x-1} - \frac{1}{3}}{x - 2} =$