

YOUR NAME: _____

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

1. Consider the function $f(x) = \begin{cases} x^2 + 2, & \text{if } x \leq 1 \\ x - 1, & \text{if } x > 1 \end{cases}$

(a) Sketch its graph.

(b) Find

$$\lim_{x \rightarrow 1^-} f(x) =$$

$$\lim_{x \rightarrow 1^+} f(x) =$$

$$\lim_{x \rightarrow 1} f(x) =$$

2. Compute the limit $\lim_{x \rightarrow 7} \frac{\sqrt{x+2}-3}{x-7}$.