

## Math 2250 Quiz 2.5 (Practice)

Name \_\_\_\_\_ Section \_\_\_\_\_

*Points will be deducted for untidy or disorganized answers*

1. (2 points) Calculate the following limits

(a)

$$\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1}$$

(b)

$$(i) \lim_{x \rightarrow 1^-} \frac{x + 1}{1 - x^2} \quad (ii) \lim_{x \rightarrow 1^+} \frac{x + 1}{1 - x^2} \quad (iii) \lim_{x \rightarrow 1} \frac{x + 1}{1 - x^2}$$

2. (1 point) Calculate the following limits

$$\lim_{x \rightarrow -\infty} \frac{2x^2 - 1}{1 + x}$$

3. (2 points) **A tricky one!** Find the horizontal and vertical asymptotes of the graph of the function

$$f(x) = \frac{x - 9}{\sqrt{4x^2 + 3x + 2}}$$

4. (Bonus points) Calculate

$$\lim_{x \rightarrow \infty} \sqrt{x^2 + 2x} - x$$