

Show all work clearly and in order, and circle your final answers.
Justify your answers algebraically whenever possible.

1. (3 points) Find the limit

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

2. (3 points) Find the value of a makes the following function continuous at $x = 1$:

$$f(x) = \begin{cases} 2x + a & ; x < 1 \\ x^2 - 3 & ; x \geq 1 \end{cases}$$