

Find the values of a and b to make the following function continuous on $[-3, 3]$.

$$f(x) = \begin{cases} \frac{\sin 3x + 5x}{4x} & x < 0 \\ ax + b & 0 \leq x \leq 2 \\ \frac{x^2 + x - 6}{x - 2} & x > 2 \end{cases}$$

Note: You need to use proper reasoning for each of the places you check continuity. You can not use direct substitution for these limits, and this process is the one you should use for all problems of this type.