Problem Definition

Problem 15. Find the limit if it exists.

\[
\lim_{x \to -2} \frac{1}{(x + 2)^2}
\]

Solution Step 1:

From our previous work it is pretty easy to see that the singularity is not removable. So, the limit will not exist and in fact as \( x \) gets closer to the location of the singularity the values of the function will become unbounded. The only question is to determine if the values are positive or negative. Since \((x + 2)^2\) is positive for any real value of \( x \) we can say

\[
\lim_{x \to -2} \frac{1}{(x + 2)^2} = \infty
\]