

114.
$$f(x) = \begin{cases} 0, & x \text{ is rational} \\ kx, & x \text{ is irrational} \end{cases}$$

If x is rational: $\lim_{x \rightarrow 0} f(x) = 0 = f(0)$

If x is irrational: $\lim_{x \rightarrow 0} f(x) = 0 = f(0)$.

Thus $f(x)$ is continuous at $x = 0$.