

- 33.** The domain of an even function is symmetric about the y -axis. Since f is continuous on the right at $x = 0$, therefore it must be defined on an interval $[0, h]$ for some $h > 0$. Being even, f must therefore be defined on $[-h, h]$. If $x = -y$, then

$$\lim_{x \rightarrow 0^-} f(x) = \lim_{y \rightarrow 0^+} f(-y) = \lim_{y \rightarrow 0^+} f(y) = f(0).$$

Thus, f is continuous on the left at $x = 0$. Being continuous on both sides, it is therefore continuous.