

15. (a) The denominator $1 + e^x$ is never equal to zero because $e^x > 0$, so the domain of $f(x) = 1/(1 + e^x)$ is \mathbb{R} .
(b) $1 - e^x = 0 \Leftrightarrow e^x = 1 \Leftrightarrow x = 0$, so the domain of $f(x) = 1/(1 - e^x)$ is $(-\infty, 0) \cup (0, \infty)$.
24. Let $t = -x^2$. As $x \rightarrow \infty$, $t \rightarrow -\infty$. So $\lim_{x \rightarrow \infty} e^{-x^2} = \lim_{t \rightarrow -\infty} e^t = 0$ by (5).
28. Let $t = 3/(2 - x)$. As $x \rightarrow 2^-$, $t \rightarrow \infty$. So $\lim_{x \rightarrow 2^-} e^{3/(2-x)} = \lim_{t \rightarrow \infty} e^t = \infty$ by (5).