2-5 EXAMPLES

1. State the definition of what it means for a function $f(x)$ to be continuous at $x = c$.

2. Given $h(x) = \begin{cases} \cos x & x < 0 \\ \frac{1}{x+1} & 0 \le x \le 3 \\ e^{x-3} & 3 < x \end{cases}$

   (a) Sketch $h(x)$.

   (b) Use the definition to *show* whether or not h is continuous at $x = 0$.

   (c) Use the definition to *show* whether or not h is continuous at $x = 1$.

   (d) Use the definition to *show* whether or not h is continuous at $x = 3$.

3. Use the Intermediate Value Theorem to show that there must be some x value such that $f(x) = x - \ln x = 10$.