(a) Evaluate the following limit:
\[
\lim_{x \to \frac{\pi}{2}} \frac{\cos x}{(x^2 - \frac{\pi^2}{4})}.
\]

As \( x \to \frac{\pi}{2} \), both the numerator and the denominator approach 0. Thus, L’Hôpital’s rule applies here. It follows that

\[
\lim_{x \to \frac{\pi}{2}} \frac{\cos x}{(x^2 - \frac{\pi^2}{4})} = \lim_{x \to \frac{\pi}{2}} \frac{-\sin x}{2x} = \frac{-\sin(\frac{\pi}{2})}{2(\frac{\pi}{2})} = -\frac{1}{\pi}.
\]

(b) For \( x > 0 \), let \( f(x) = x - 2 \ln x \). Identify all local maxima, local minima, and points of inflection of \( f \).

First, we find the critical points of \( f \). Note that \( f'(x) = 1 - \frac{2}{x} \).

By setting \( f'(x) = 0 \), it follows that \( x = 2 \) is the only critical point. Since \( f''(x) = \frac{2}{x^2} \), we have \( f''(2) = \frac{1}{2} > 0 \). This means that \( f \) has a local maximum at the critical point \( x = 2 \).

To locate inflection points, we set \( f''(x) = 0 \) and solve for \( x \). However, \( f''(x) = \frac{2}{x^2} \) can never be zero for any real number \( x > 0 \). This implies that \( f \) has no inflection points.