3.6 PAGE 223  2, 3, 5, 15, 23, 31 (again)
3.8 PAGE 242  1, 3, 5, 9, 17 (not on Q2)

Thursday Sept 22; covers §§ 3.3. Differentiate, simplify, find all critical points:

1) Let \( f(x) = \sin^2 x - \cos x \) on \([0, \pi]\)
   a) Differentiate and simplify
   b) Find all \( x \) with \( f'(x) = 0 \)

2) Let \( f(x) = \sin^2 x + \sin x \) on \([-\pi, \pi]\)
   a) Differentiate and simplify
   b) Find all \( x \) with \( f'(x) = 0 \)

3) Let \( f(x) = \sin x \cos x \) on \([0, \pi]\)
   a) Differentiate and simplify
   b) Find all \( x \) with \( f'(x) = 0 \)

Differentiate, simplify, and find all critical points:

\[
\begin{align*}
  f(x) & = x^2 e^{-x} \\
  f(x) & = xe^{-x^2} \\
  f(x) & = x^2 \ln x \\
  y & = \frac{\ln x}{x^2} \\
  y & = x^2 e^{-x^2} \\
  y & = x(\ln x)^2
\end{align*}
\]