Each problem is worth 5 points. Clear and complete justification is required for full credit.

1. Let $f(x) = x^2 e^x$. Find an equation for the line tangent to $f(x)$ where $x = 1$.

2. Let $g(x) = \dfrac{\sin x}{x}$. Find an equation for the line tangent to $g(x)$ where $x = \pi/2$.