5. (10 points) Find the quadratic polynomial $g(x) = ax^2 + bx + c$ which "best fits" the function $f(x) = \ln(x)$ at $x = 1$ in the sense that

$$g(1) = f(1), \qquad \text{and} \qquad g'(1) = f'(1), \qquad \text{and} \qquad g''(1) = f''(1).$$

$g(x) = \underline{\hspace{6cm}}$