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

1. Does the differential equation $\frac{dH}{dt} = 375 - H$ have the function $H = 375 - Ae^{-t}$ as a solution?

2. Does the differential equation y'' - 2y' - 15y = 0 have the function $y = e^{-3t}$ as a solution?