Name (Last, First)

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1. (5pts) Find a particular solution of the variable–coefficient linear equation

$$t^2 y''(t) - 4ty'(t) + 6y(t) = 4t^3, \quad t > 0.$$

2. (5pts) Use the reduction of order formula to obtain an integral representation of a second linearly independent solution to **Hermite's equation**[1] for $\lambda = 4$ and a solution $f(t) = 1 - 2t^2$;

$$y''(t) - 2ty'(t) + \lambda y(t) = 0.$$

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[1]The given equation is called **Hermite's equation** and has applications in quantum mechanics.