These are alleged answers. For each error herein, you get extra-credit points for being the first to report it by e-mail.

1. The standard form for a second-order linear differential equation:

   \[ y''(x) + p(x)y'(x) + q(x)y(x) = g(x) \]

2. The standard form for a *homogeneous* second-order linear differential equation:

   \[ y''(x) + p(x)y'(x) + q(x)y(x) = 0 \]

3. Initial conditions for a first-order differential equation must specify a single point on the solution graph \((y(a) = b)\). For a second-order differential equation, initial conditions must specify both a point and a slope \((y(a) = b, \ y'(a) = m)\).

4. The function \(y(x) = x^3\) is *not* a solution of the differential equation \(x^2y'' - 7xy' + 16y = 0\). If one substitutes the derivatives of \(y(x) = x^3\) into the differential equation, one gets

   \[ x^2y'' - 7xy' + 16y = x^2(6x) - 7x(3x^2) + 16x^3 \]
   \[ = 6x^3 - 21x^3 + 16x^3 = x^3 \neq 0 \]

Since the \(x^3\) at the end is *not identically* zero, the \(x^3\) function is not a solution of the differential equation.