MIT 16.90 Spring 2014: Solution Set 1

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Solution 1. 1 *Two-step schemes with highest local order of accuracy*

1. The following scheme is 3rd order accurate

$$v^{n+1} = -4v^n + 5v^{n-1} + 4\Delta t F(v^n) + 2\Delta t F(v^{n-1})$$

2. The following scheme is 4th order accurate

$$v^{n+1} = v^{n-1} + \frac{1}{3}\Delta t F(v^{n+1}) + \frac{4}{3}\Delta t F(v^n) + \frac{1}{3}\Delta t F(v^n)$$
