4.1 Introduction: The Mass-Spring Oscillator

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P 4. Verify that $y = \sin 3t + 2\cos 3t$ is a solution to the initial value problem

$$2y'' + 18y = 0; \quad y(0) = 2, \quad y'(0) = 3.$$

Find the maximum of $|y(t)|$ for $-\infty < t < \infty$.

P 7. Finda synchronous solution of the form $A \cos \Omega t + B \sin \Omega t$ to

$$y'' + 2y' + 4y = 5 \sin 3t,$$

where $\Omega = 3$.