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LOWER BOUNDS FOR THE FIRST ZERO FOR NONLINEAR SECOND ORDER DIFFERENTIAL EQUATIONS

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Abstract. We consider establishing lower bounds for the first zero of the solution of the nonlinear second order initial value problem

$$(p(x)y'(x))' + f(x,y(x)) = 0, \quad x \geqslant 0$$
$$y(0) = a > 0, \quad y'(0) = 0.$$

Using the linear case as a starting point, we prove several of these theorems, comparing them by considering several examples.

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