$\mathbf{MATH}\ 3430\text{-}02\ \mathbf{QUIZ}\ 5$

Suppose that $y_1(t) \neq 0$ satisfies

(*)
$$y'' + p(t)y' + q(t)y = 0.$$

Derive the formula that v(t) satisfies in order for $v(t)y_1(t)$ to be a solution of (*).