

**Problem 1.13**

- (a) Show that if  $a$  is a constant and  $b(x)$  is a function, then

$$y'' + \frac{b'(x)}{b(x)}y' - \frac{a^2}{[b(x)]^2}y = 0$$

has a pair of linearly independent solutions which are reciprocals; find them.

- (b)  $y(x)$  and  $[y(x)]^2$  are both solutions of  $y'' + p(x)y' + 2y = 0$ . Find  $y(x)$ .