MA22S3 Tutorial Sheet 7

23–24 November 2016

- 1. Find the general solutions to the following differential equations.
 - (a) $\ddot{P}(t) + 4\dot{P}(t) + 4P(t) = 0.$
 - (b) f''(x) 2f'(x) + 6f(x) = 0.
 - (c) $2\ddot{s}(t) + s(t) = 0.$
- 2. (a) Verify that $y_1 = x^{-1/2}$ is a solution to the differential equation

$$4x^{2}y'' + (4x - 4x^{2})y' - (1 + 2x)y = 0.$$
(1)

(b) Use the method of reduction of order to find the general solution to equation (1).