

## Problem Set 18

Solve the following differential equations:

1) (9.2.6)

$$(1+x)y' + y = \sqrt{x}.$$

2) (9.2.8)

$$e^{2x}y' + 2e^{2x}y = 2x.$$

3) (9.2.14)

$$\tan \theta \frac{dr}{d\theta} + r = \sin^2 \theta, \quad 0 < \theta < \pi/2.$$

4) (9.2.18)

$$\theta \frac{dy}{d\theta} - 2y = \theta^3 \sec \theta \tan \theta, \quad \theta > 0, \quad y(\pi/3) = 2.$$

5) (9.2.20)

$$\frac{dy}{dx} + xy = x, \quad y(0) = -6.$$