

## Assignment 6

**Marks # 100**

Solve the following differential equation over the interval from  $x = 0$  to 1 using a step size of 0.25 where  $y(0) = 1$ . Display all your results on the same graph.

$$\frac{dy}{dx} = (1 + 2x)\sqrt{y}$$

- (a) Analytically.
- (b) Euler's method.
- (c) Heun's method.
- (d) Ralston's method.
- (e) Fourth-order RK method.