11.12.15

Pr 3

$$\frac{dy}{dt} = \sqrt{y+t} \qquad , y(.2)=0$$

$$f(y,t) = \sqrt{y+t}$$

(5pts) $y_{n+1} = y_n + h\sqrt{y_n+t_n}$ Euler $t_0 = .2$, $y_0 = 0$

(10pts)

$y_1 = 0 + .1\sqrt{0+.2} = .1\,(.4472)$

$= .04472$

$y_2 = y_1 + h\sqrt{y_1+t_1}$ $\qquad t_1 = .3$

$y_2 = .04472 + .1\sqrt{.04472+.3}$

$y_2 = .04472 + .1\sqrt{.34472}$

$.1 \times .5871$

$.0587$

$.04472$

$.10343$

(5pts) $\boxed{y_2 = .10343}$

(20pts total)