

**M353 6.4 R-K** (S. Zhang) .

1. (6.4:a1) (1) Solve initial value problem (hint: separable,  
 $y = 3e^{t^2 - 4 \cos(\pi t)}$ )

$$y' = (2t + 4\pi \sin(\pi t))y; \quad y(2) = 3.$$

(2) Use the Euler method with  $h = .1$  and  $h = 0.05$  to approximate  $y(2.1)$ . Find the extrapolated solution and all errors.

(3) Use the Runge-Kutta method with  $h = .1$  and  $h = 0.05$  to approximate  $y(2.1)$ . Find the extrapolated solution and all errors.