) FR

$$\frac{dy}{dx} = x^2 y$$

a) slope field

(1)

b) $f(0) = 1$ Euler start at $x = 0$
step $= 0.1$
Approximate $f(0.2)$

X	y	dy/dx
0	1	0
0.1	1 (1)	.01 (1)
0.2	1.001 (1)	

$y = .1(0) + 1$

$y = .1(.01) + 1$

$f(0.2) \approx 1.001$

c) Find particular solution w/ $f(0) = 1$
Find $f(0.2)$

$$\frac{dy}{dx} = x^2 y$$

(1) $\int \frac{1}{y} dy = \int x^2 dx$

(1) $\ln|y| = \frac{x^3}{3} + C$

$y = e^{\frac{x^3}{3} + C}$

$y = e^{\frac{x^3}{3}} \cdot e^C$

$y = Ce^{x^3/3}$ (1) sub

$1 = Ce^0$

$C = 1$ (1)

* $y = e^{x^3/3}$

* $y = e^{(0.2)^3/3}$ (1) ≈ 1.003