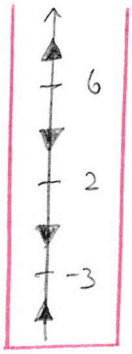
Course	Student ID	Test
MATH 2A	0867530 9	QUIZ 1

Question	2	3	4	5
Points	7½	5	10½	6
	MAX: 8	MAX: 7½	MAX: 11½	MAX: 8

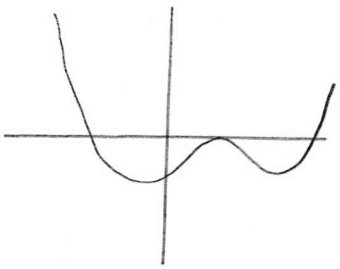
Total	29
	MAX: 35

[2] [a]



2½

[b]



[c] [i] -3 (1)

[ii] 6 (1)

[d] STABLE (1)

[3] $\frac{dA}{dt} = 43 - 20\left(\frac{A}{400-8t}\right) = 43 - \frac{20A}{400-8t}$, $t \le 50$ (2½) (1) (½)

$A(0) = 400(2) = 800$ (1)

[4] [a] $y' = \frac{1}{2}\,\frac{1}{1+(\frac{x}{2})^2}\,\frac{1}{2} = \frac{1}{4+x^2}$ (2½) (1)

$y'' = -\frac{1}{(4+x^2)^2}\,2x = -\frac{2x}{(4+x^2)^2}$ (2½)

$y'' + 2x(y')^2 = -\frac{2x}{(4+x^2)^2} + \frac{2x}{(4+x^2)^2} = 0$ (2) (½)

$y(2) = \frac{1}{2}\frac{\pi}{4} = \frac{\pi}{8}$ (½) $y'(2) = \frac{1}{4+4} = \frac{1}{8}$ (½)

$y = \frac{1}{2}\tan^{-1}\frac{x}{2}$ IS A SOLUTION (1)

[b] NO, NOT 1ST ORDER

[5] [a] $y' = 3(\frac{2x}{3}+C)^2\,\frac{2}{3} = 2(\frac{2x}{3}+C)^2$ (2)

$(y')^3 = 8(\frac{2x}{3}+C)^6 \quad 8y^2 = 8(\frac{2x}{3}+C)^6$ (1)

[b] $y(6) = (4+C)^3 = 0$ (½)

$C = -4$

[c] $y' = 0$

$(y')^3 = 0 \quad 8y^2 = 0$ (½)

[d] $y' = 2y^{\frac{2}{3}} = f(y)$ (1)

$f_y = \frac{4}{3}y^{-\frac{1}{3}}$ (1)