MA125 Quiz 2

Name: KEY

1) (8 pts) Find a formula for the inverse of the function

$$f(x) = \sqrt{5 - 2x}$$

$y = \sqrt{5-2x}$

$y^2 = 5-2x$

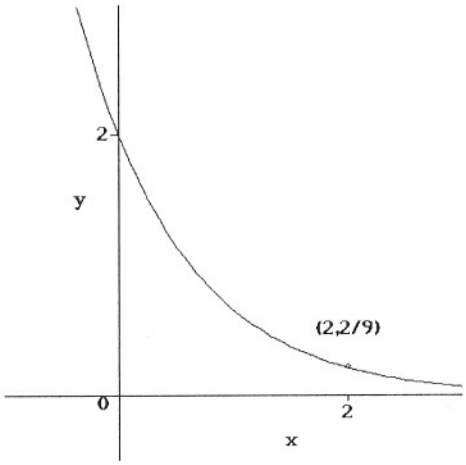
$2x = 5-y^2$

$x = (5-y^2)/2$

⇒ interchange x and y!

$y = f^{-1}(x) = \left(\frac{5-x^2}{2}\right)$

2) (8 pts) Find the exponential function $y = Ca^x$ whose graph is given:



$(0,2) \Rightarrow Ca^0 = 2 \Rightarrow C = 2$

$(2, 2/9) \Rightarrow Ca^2 = \frac{2}{9}$

$\Rightarrow 2a^2 = \frac{2}{9}$

$\Rightarrow a^2 = \frac{1}{9}$

$\Rightarrow a = \frac{1}{3}$

(OVER)

3) (9 pts) If

$$f(x) = \sin x \quad \text{and} \quad g(x) = 1 - \sqrt{x}$$

find the composite function $(f \circ g)(x)$ and its domain.

$(f \circ g)(x) = \sin(1 - \sqrt{x})$

Domain: $\{x : x \geq 0\} = [0, \infty)$