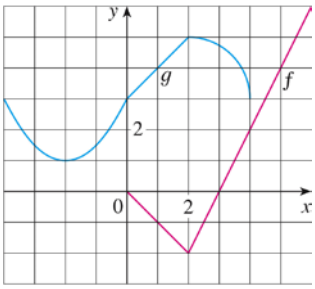
National ILan University **Civil Engineering**

Course: Calculus Test 1 **(Functions and Limits)** **Date: 10/28/2015**

Class:_ **ID:** **Name:**

1. Use the given graphs of *f* and *g* to evaluate each expression, or explain why it is undefined. (15)



(1) $f(g(1))$

(2) $(g \circ f)(6)$

(3) $(g \circ g)(-2)$

2. Solve each equation for *x*. (30)

(1) $2^{x-5} = 3$

(2) $\ell n\, x + \ell n(x-1) = 1$

3. Evaluate the indicated limit, if it exists. If the limit does not exist, explain why. (30)

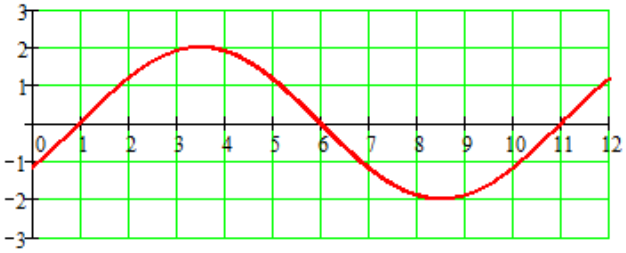
(1) $\lim_{x \to 2} \dfrac{x-3}{x^2-4}$

(2) $\lim_{t \to 1} \dfrac{\sqrt{t+3}-2}{t-1}$

(3) $\lim_{x \to 0} \dfrac{\tan(2x)}{5x}$

4. Find the function of the following graph, and explain why： (30)

(1)



(2)