

Reading Quiz #2

姓名：_____ 系級：_____ 學號：_____ 分數：_____

Read Sections 2.1-2.6 (pages 65-125) and do the following.

1. How many different types of limits introduced here? Write their definitions down.

2. Find the limit $\lim_{x \rightarrow 0} \frac{\sqrt{x+4} - 2}{x}$.

3. State all theorems which help you computing limits of functions.

4. (a) What is wrong with the following equation? $\frac{x^2 + x - 6}{x - 2} = x + 3$

(b) In view of part (a), explain why the equation $\lim_{x \rightarrow 2} \frac{x^2 + x - 6}{x - 2} = \lim_{x \rightarrow 2} (x + 3)$ is correct.

5. The gravitational force exerted by Earth on a unit mass at a distance r from the center of the planet is

$$F(r) = \begin{cases} \frac{GMr}{R^3} & \text{if } r < R \\ \frac{GM}{r^2} & \text{if } r \geq R \end{cases}$$

where M is the mass of the Earth, R is its radius, and G is the gravitational constant. Is F a continuous function of r ?

6. Find an equation of the tangent line to the curve $y = \frac{2x}{(x+1)^2}$ at the point $(0,0)$.

7. Do those even numbered True-False Quiz on page 122.