Limits of Functions: Tutorial Sheet

Question 1 : Evaluate the following limits

(i) Compute the limit of the following function

$$\lim_{x\to 4} \frac{x^2-15}{x-4}$$

(ii) Compute the limit of the following function

$$\lim_{x\to 4} \frac{x^2-x-12}{x-4}$$

(iii) Compute the limit of the following function

$$\lim_{x\to \infty} \frac{3+2x^2-8x^3}{4x^3-7x+5}$$

(iv) Compute the limit of the following function.

$$\lim_{x\to 6} \frac{x^2+2x-10}{x-4}.$$

(v) Compute the limit of the following function.

$$\lim_{x\to \infty} \frac{3+2x^2-6x^3}{4x^3-5x+7}.$$

(vi) Compute the limit of the following function

$$\lim_{x\to 4} \frac{x^2-15}{x-4}$$

(vii) Compute the limit of the following function

$$\lim_{x\to 4} \frac{x^2-x-12}{x-4}$$

(viii) Compute the limit of the following function

$$\lim_{x\to \infty} \frac{3+2x^2-8x^3}{4x^3-7x+5}$$

Question 2 : Evaluate the following limits

(i) $\lim_{x\to 5}(x^2)$

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

(iii) $\lim_{x\to 4} x + 5$

(iv) $\lim_{x\to 2} 2x - 1$

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

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

(vii) $\lim_{x\to\infty} \dfrac{x + 4}{x - 4}$

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

(ix) $\lim_{x\to\infty} \dfrac{x^2 - 1}{x - 1}$

(x) $\lim_{x\to\infty} \dfrac{2x^2 + 8}{5x^2 - 7x}$

(xi) $\lim_{x\to\infty} \dfrac{3x^2 + 7x^3}{x^2 + 5x^4}$

(xii) $\lim_{x\to\infty} \dfrac{2x^2 - 8x}{4x^2 - 7}$

(xiii) $\lim_{x\to\infty} \dfrac{x - 3}{x^2 - 9}$