201-103-RE - Supplement A: Limits

Evaluate the following limits.

(1) $\displaystyle\lim_{x\to-4}\frac{1-\sqrt{x+5}}{x+4}$

(2) $\displaystyle\lim_{x\to1}\frac{\frac{1}{x+2}+\frac{1}{x-4}}{x-1}$

(3) $\displaystyle\lim_{x\to3}\frac{4-\sqrt{x+13}}{x-3}$

(4) $\displaystyle\lim_{x\to-2}\frac{\frac{1}{x+3}+\frac{1}{x+1}}{x+2}$

(5) $\displaystyle\lim_{x\to4}\frac{x-4}{\sqrt{x+21}-5}$

(6) $\displaystyle\lim_{x\to-1}\frac{3-\frac{12}{x+5}}{x+1}$

(7) $\displaystyle\lim_{x\to-3}\frac{x+3}{3-\sqrt{x+12}}$

(8) $\displaystyle\lim_{x\to-2}\frac{2-\frac{8}{x+6}}{x+2}$

(9) $\displaystyle\lim_{x\to\infty}\frac{(2-x)(x+3)}{(3x-1)(x+1)}$

(10) $\displaystyle\lim_{x\to1}\frac{x-1}{\frac{1}{4x}-\frac{1}{x+3}}$

(11) $\displaystyle\lim_{x\to-2}\frac{x+2}{\sqrt{x+3}-1}$

(12) $\displaystyle\lim_{x\to\infty}\frac{(x+2)(6-2x)}{x^2+3x+8}$

(13) $\displaystyle\lim_{x\to\infty}\frac{(x^2+2x)(7+x^2)}{(x^3+1)(3x+5)}$

(14) $\displaystyle\lim_{x\to\infty}\frac{2x+1}{(3x+1)(4x+1)}$

(15) $\displaystyle\lim_{x\to-\infty}\frac{x(x^2-5x+2)}{2x^2-7x+1}$

ANSWERS:

(1) $-1/2$

(2) $-2/9$

(3) $-1/8$

(4) -2

(5) 10

(6) $3/4$

(7) -6

(8) $1/2$

(9) $-1/3$

(10) $-16/3$

(11) 2

(12) -2

(13) $1/3$

(14) 0

(15) $-\infty$