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1. $\lim_{x \to -2} (x^2 + 2x - 1)$

$= (-2^2 + 2.(-2) - 1)$

$= (4 + (-4) - 1)$

$= 0 - 1$

$= -1$

2. $\lim_{x \to 2} \frac{x^2 - 9}{X - 3}$

$= \frac{(X+3)(X-3)}{X-3}$

$= X + 3$

$= 2 + 3$

$= 5$

3. $\lim_{x \to 2} \frac{x^2 - 4x^2 + X + 6}{X + 1}$

$= \frac{-3x^2+X+6}{X+1}$

$= \frac{-3.2^2+ 2+6}{2+1}$

$= \frac{-3.4+8}{3} = \frac{-4}{3}$

4. $\lim_{x\to 0} \frac{x^4 + 4x^3 - x^2}{x^2}$

$= \frac{x^2.x\,(x^2+4x-1)}{x^2}$

$= x^2 + 4x - 1$

$= 0^2 + 4.0 - 1$

$= 0 + 0 - 1$

$= -1$

5. $\lim_{x\to 2} \frac{x^2 - 4x^2 + X + 6}{X + 1}$

$= \frac{-3x^2+X+6}{X+1}$

$= \frac{-3.2^2+2+6}{2+1}$

$= \frac{-3.4+8}{3} = \frac{-4}{3}$

6. $\lim_{x\to 7^+} \frac{\sqrt{(t-7)^3}}{t-7}$

$= \frac{\sqrt{(t-7)^3}}{t-7} \cdot \frac{\sqrt{(t-7)}}{\sqrt{(t-7)}}$

$= \frac{(t-7)^3}{t-7.\sqrt{(t-7)}} = \frac{3t-21}{t-7\sqrt{t-7}} = \frac{3.7-21}{7-7\sqrt{7-7}} = \frac{21-21}{0\sqrt{0}} = \frac{0}{0\sqrt{0}} = 0$

7 . $\lim_{x \to -1} \frac{x^2 - 2X - 3}{x + 1}$

$\frac{x^2-2X-3}{x+1} = \frac{(X-3)(X+1)}{X+1}$

= x - 3

= -1 – 3 = -4

8. $\lim_{x \to \infty} \frac{x^2}{5 - x^3}$

$= \frac{\frac{x^2}{x^3}}{\frac{5}{x^3}\ \frac{x^3}{x^3}} = \frac{0}{0-1} = 0$

9. $\lim_{x \to \infty} (\sqrt{x^2 + 2x - x})$

$= (\sqrt{x^2 + 2x - x}) \ . \frac{(\sqrt{x^2+2x+x})}{(\sqrt{x^2+2x+x})}$

$= \frac{x^2+2x-x}{\sqrt{x^2+2x+x}}$

$= \frac{\frac{x^2}{x^2}+\frac{2x}{x^2}-\frac{x}{x^2}}{\sqrt{\frac{x^2}{x^2}+\frac{2x}{x^2}+\frac{x}{x^2}}} = \frac{1+0-1}{1+0+0} = \frac{0}{2} = 0$

10. $\lim_{x \to 3} \frac{t^2}{9 - t^2}$

$= \frac{3^2}{9-3^2}$

$= \frac{9}{9-9} = 9$

11. Sketsa grafik dari

$$F(x) = \begin{cases} -x \; jika \; x < 0 \\ x \; jika \; 0 \leq x < 1 \\ 1 + x \; jika \; x \geq 1 \end{cases}$$

Kemudian cari masing-masing yang berikut atau nyatakan jika tidak ada

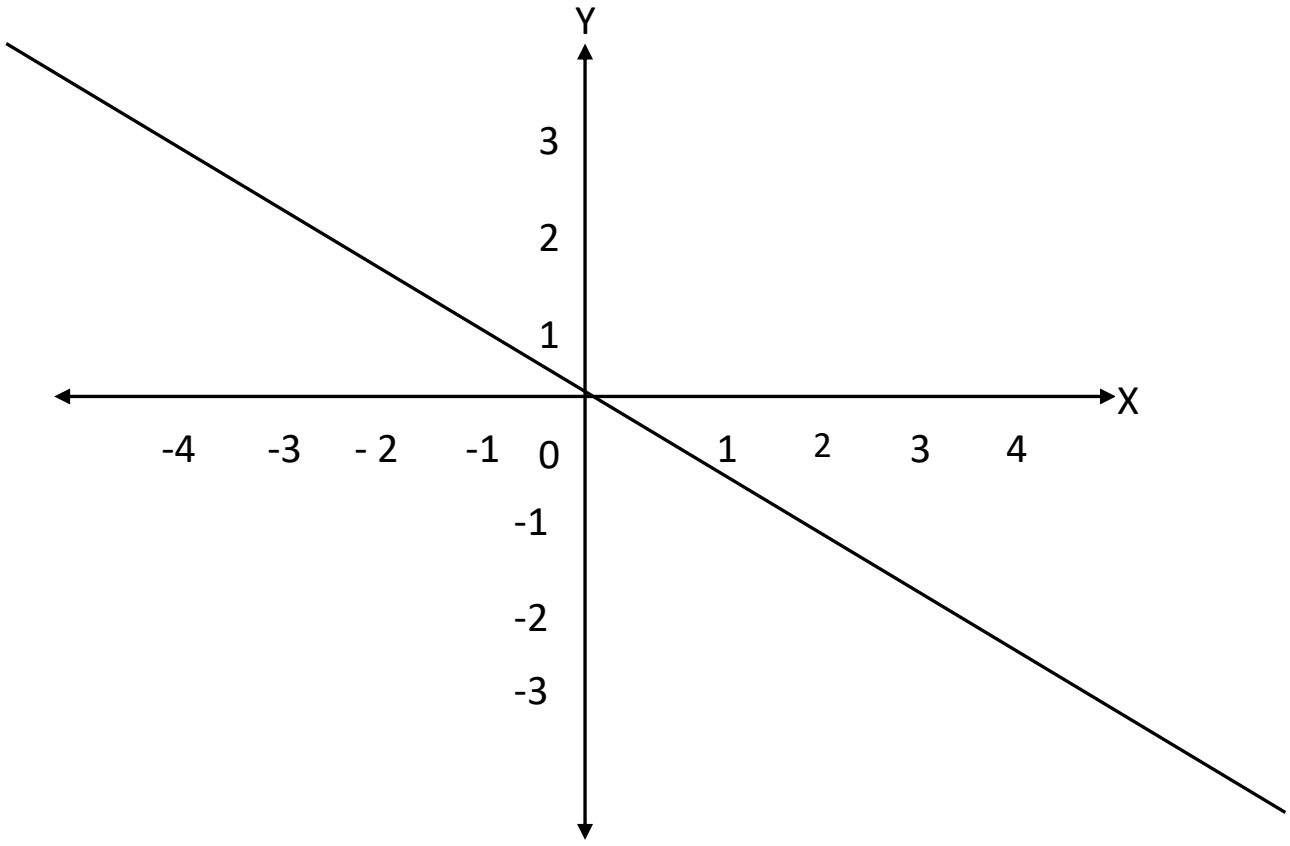
$a). \lim_{x \to 1^-} f(x) = 2$

b). $\lim_{x \to 1} f(x) = 2$

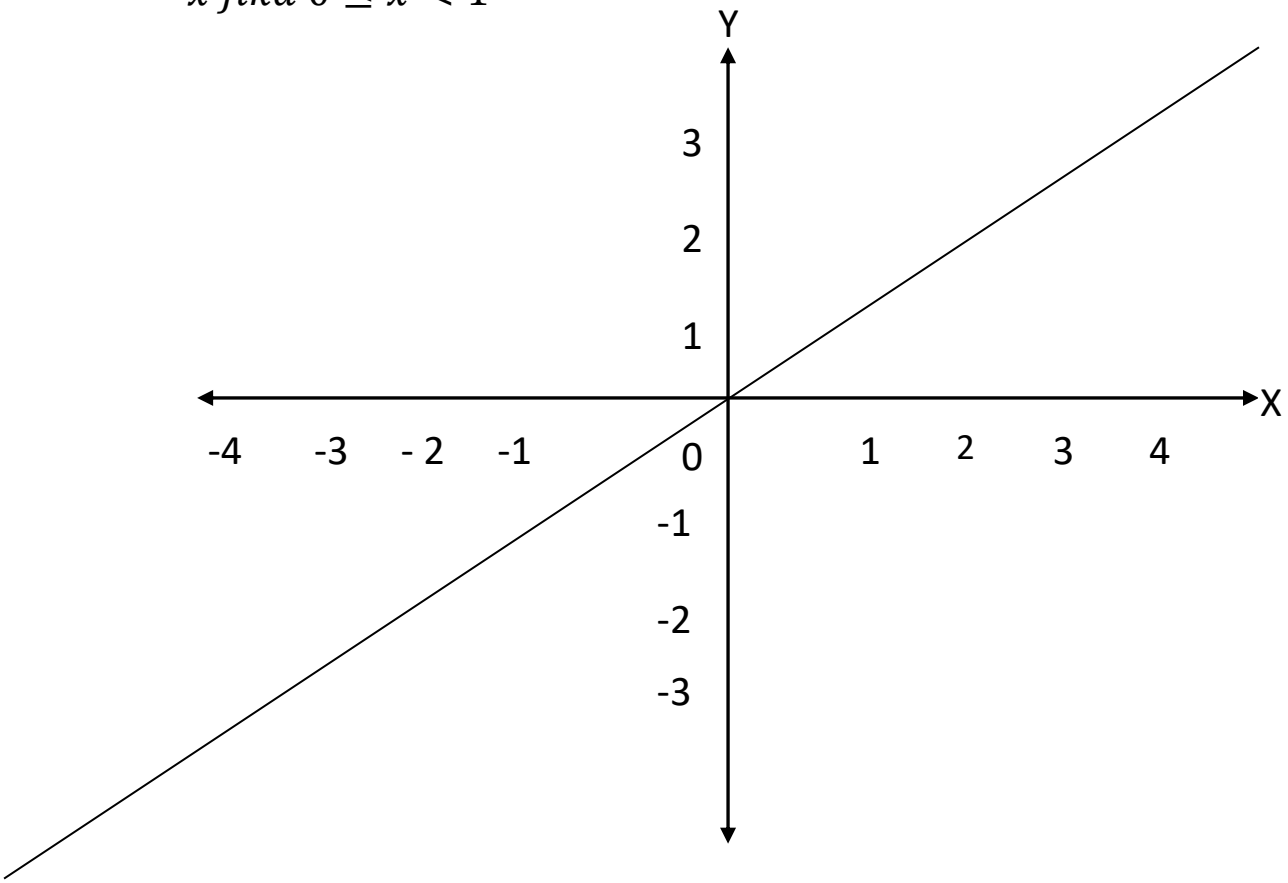
c). $f(1)$ = Tidak terdefinisi

d). $\lim_{x \to -1^+} f(x) = 2$

$-x \; jika \; x < 0$



$x\ jika\ 0 \leq x < 1$



$1 + x \; jika \; x \geq 1$