(4) Find the limit.

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

$$= 4 + 2t - 1 = \boxed{3 + 2t}$$

(8) Find the limit.

$$\lim_{t \to -7} \frac{t^2 + 4t - 21}{t + 7} = \lim_{t \to -7} \frac{(t+7)(t-3)}{(t+7)}$$

$$= \lim_{t \to -7} (t - 3) = -7 - 3$$

$$= \boxed{-10}$$

(14) $$\lim_{t \to 7^+} \frac{\sqrt{(t-7)^3}}{(t-7)} = \lim_{t \to 7^+} \frac{\sqrt{(t-7)^2} \cdot \sqrt{(t-7)}}{(t-7)}$$

$$= \lim_{t \to 7^+} \frac{(t-7) \cdot \sqrt{(t-7)}}{(t-7)}$$

$$= \lim_{t \to 7^+} \sqrt{(t-7)} = \sqrt{7-7}$$

$$= \sqrt{0}$$

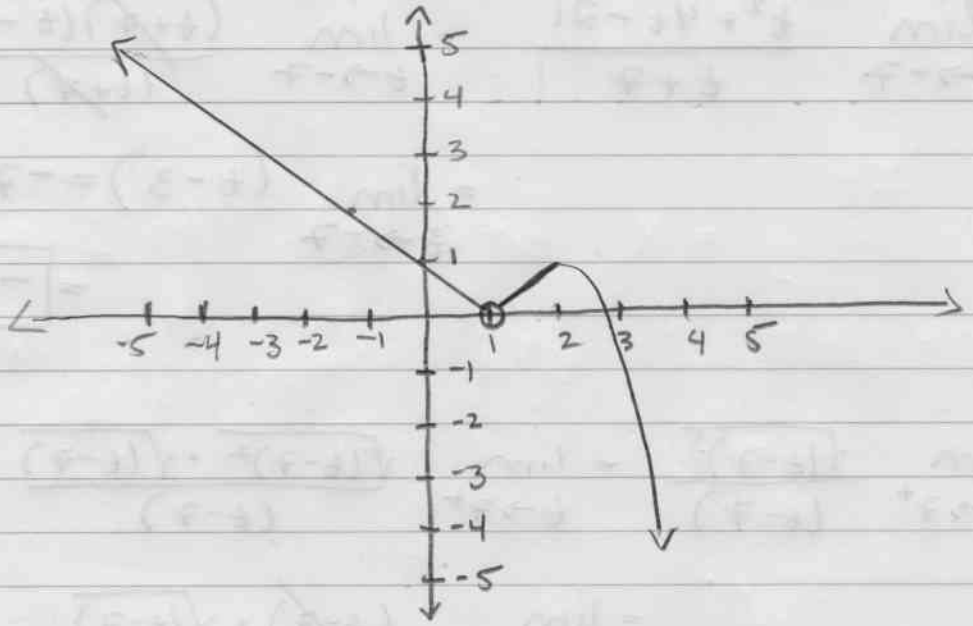
$$= \boxed{0}$$

2.1 Introduction to Limits

(34) Sketch the graph of

$$g(x) = \begin{cases} -x+1 & \text{if } x < 1 \\ x-1 & \text{if } 1 < x < 2 \\ 5-x^2 & \text{if } x \geq 2 \end{cases}$$

then find each of the following or state that it does not exist.



a) $\lim_{x \to 1} g(x) = 0$

b) $g(1)$ does not exist

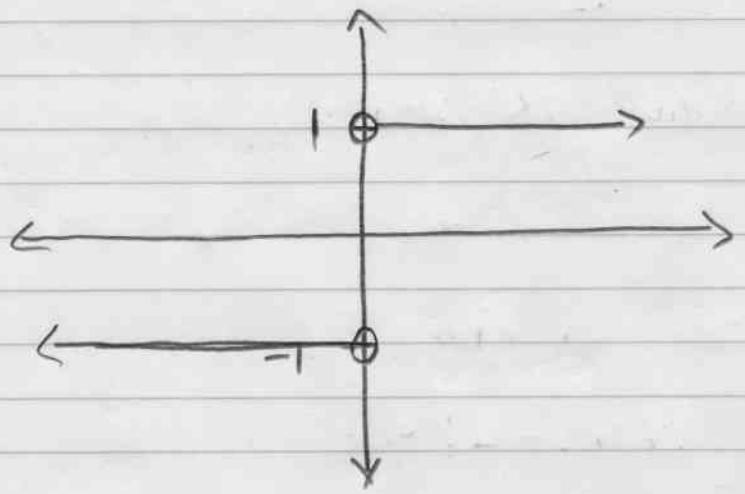
c) $\lim_{x \to 2} g(x) = 1$

d) $\lim_{x \to 2^+} g(x) = 1$

2.1 Introduction to Limits

(36) Sketch the graph of $f(x) = \frac{x}{|x|}$

Then find each of the following or state that it does not exist.



a) $f(0)$ does not exist (no output)

b) $\lim_{x \to 0} f(x)$ does not exist (limit not same on Right and left of 0.)

c) $\lim_{x \to 0^-} f(x) = -1$ (from left).

d) $\lim_{x \to 1/2} f(x) = 1$ (=1 from both sides of 2)