

## Paul's Online Notes

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### Section 2.6 : Infinite Limits - Practice Problems

For problems 1 – 6 evaluate the indicated limits, if they exist.

1. For  $f(x) = \frac{9}{(x-3)^5}$  evaluate,

(a)  $\lim_{x \rightarrow 3^-} f(x)$    (b)  $\lim_{x \rightarrow 3^+} f(x)$    (c)  $\lim_{x \rightarrow 3} f(x)$

**[Solution]**

2. For  $h(t) = \frac{2t}{6+t}$  evaluate,

(a)  $\lim_{t \rightarrow -6^-} h(t)$    (b)  $\lim_{t \rightarrow -6^+} h(t)$    (c)  $\lim_{t \rightarrow -6} h(t)$

**[Solution]**

3. For  $g(z) = \frac{z+3}{(z+1)^2}$  evaluate,

(a)  $\lim_{z \rightarrow -1^-} g(z)$    (b)  $\lim_{z \rightarrow -1^+} g(z)$    (c)  $\lim_{z \rightarrow -1} g(z)$

**[Solution]**

4. For  $g(x) = \frac{x+7}{x^2-4}$  evaluate,

(a)  $\lim_{x \rightarrow 2^-} g(x)$    (b)  $\lim_{x \rightarrow 2^+} g(x)$    (c)  $\lim_{x \rightarrow 2} g(x)$

**[Solution]**

5. For  $h(x) = \ln(-x)$  evaluate,

(a)  $\lim_{x \rightarrow 0^-} h(x)$    (b)  $\lim_{x \rightarrow 0^+} h(x)$    (c)  $\lim_{x \rightarrow 0} h(x)$

**[Solution]**

6. For  $R(y) = \tan(y)$  evaluate,

(a)  $\lim_{y \rightarrow \frac{3\pi}{2}^-} R(y)$    (b)  $\lim_{y \rightarrow \frac{3\pi}{2}^+} R(y)$    (c)  $\lim_{y \rightarrow \frac{3\pi}{2}} R(y)$

**[Solution]**

For problems 7 & 8 find all the vertical asymptotes of the given function.

7.  $f(x) = \frac{7x}{(10 - 3x)^4}$    **[Solution]**

8.  $g(x) = \frac{-8}{(x + 5)(x - 9)}$    **[Solution]**