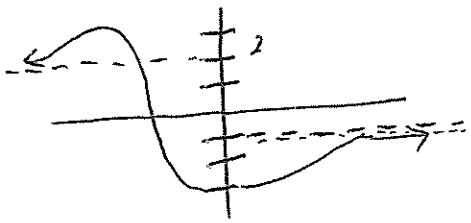
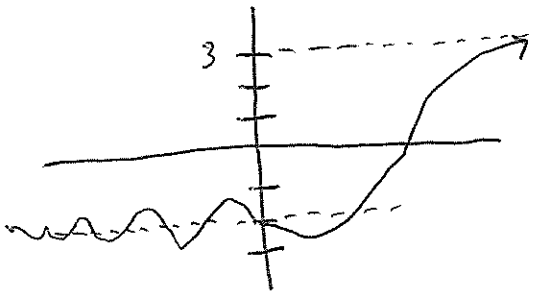
Math 12 H Homework 12.4 Limits at infinity

p. 915

#1) $y = 2$
$y = -1$



#2) $y = 3$
$y = -2$



3) $\lim_{x \to \infty} \frac{6}{x} = \boxed{0}$

4) $\lim_{x \to \infty} \frac{3}{x^4} = \boxed{0}$

5) $\lim_{x \to \infty} \frac{2x+1}{5x-1} = \boxed{\frac{2}{5}}$

6) $\lim_{x \to \infty} \frac{2-3x}{4x+5} = \boxed{\frac{-3}{4}}$

7) $\lim_{x \to -\infty} \frac{4x^2+1}{2+3x^2} = \boxed{\frac{4}{3}}$

8) $\lim_{x \to -\infty} \frac{x^2+2}{x^3+x+1} = \boxed{0}$

9) $\lim_{t \to \infty} \frac{8t^3+t}{(2t-1)(2t^2+1)} = \frac{8t^3}{4t^3} = \boxed{2}$

10) $\lim_{t \to \infty} \frac{4r^3-r^2}{(r+1)^3} = \boxed{4}$

11) $\lim_{t \to \infty} \frac{x^4}{1-x^2+x^3} = \boxed{+\infty}$ (D.N.E)

12) $\lim_{t \to \infty} \left(\frac{1}{t} - \frac{2t}{t-1}\right) = \boxed{-2}$
$(0 - 2)$

13) $\lim_{x \to -\infty} \left(\frac{x-1}{x+1} + 6\right) = 7$
$\left(\frac{-1}{-1} + 6\right)$

14) $\lim_{x \to \infty} \cos x = $ D.N.E

#20) $a_n = \frac{5n}{n+5}$ Converges. lim. t = 5

22) $a_n = \frac{n-1}{n^3+1}$ Convergent lim. t = 0

24) $a_n = \frac{(-1)^n}{n} =$ Convergent lim. t = 0

$\lim_{n \to \infty} a_n = 0$ $\lim_{n \to \infty} a_{2n} = 0$ $\frac{1}{2n} \to 0$ $\frac{-1}{2n+1} \to 0$

left lim. t = right lim. t = 0