Limits at infinity - Answers

1.	Evaluate this limit. $\lim_{x\to\infty} \frac{3x^5+2x^3-x^2+6x}{-7x^5+5}$ $-\frac{3}{7}$
2.	For $f(x) = 3x^5 - 12x^2 + 7$ evaluate each of the following limits. (a) $\lim_{x\to-\infty} f(x)$ $-\infty$ (b) $\lim_{x\to\infty} f(x)$ ∞

For problems 3 – 10 answer each of the following questions.

(a) Evaluate $\lim_{x\to-\infty} f(x)$

(b) Evaluate $\lim_{x\to\infty} f(x)$

(c) Write down the equation(s) of any horizontal asymptotes for the function.

3.	$f(x) = \frac{6-5x^2}{7x^2+3x}$	(a) $-\frac{5}{7}$	(b) $-\frac{5}{7}$	(c) $y = -\frac{5}{7}$
4.	$f(x) = \frac{4x^7-3x^2+6}{7-9x^2}$	(a) ∞	(b) $-\infty$	(c) No horizontal Asymptote
5.	$f(x) = \frac{21x^4-3x^3}{2x+8x^2+7x^4}$	(a) 3	(b) 3	(c) y = 3
6.	$f(x) = \frac{x^3-5x+8}{7-4x^5}$	(a) 0	(b) 0	(c) y = 0
7.	$f(x) = \frac{2x^6-3x^4+x^2-3}{5x^6+3x^3+8}$	(a) $\frac{2}{5}$	(b) $\frac{2}{5}$	(c) $y = \frac{2}{5}$
8.	$f(x) = \frac{\sqrt{7+16x^2}}{1-3x}$	(a) $\frac{4}{3}$	(b) $-\frac{4}{3}$	(c) $y = \frac{4}{3}$ and $y = -\frac{4}{3}$
9.	$f(x) = \frac{x+6}{\sqrt{3x^2+2}}$	(a) $\frac{1}{-\sqrt{3}}$	(b) $\frac{1}{\sqrt{3}}$	(c) $y = \frac{1}{\sqrt{3}}$ and $= -\frac{1}{\sqrt{3}}$
10.	$f(x) = \frac{7+x-3x^2}{\sqrt{5x^4+x^2+8}}$	(a) $\frac{-3}{\sqrt{5}}$	(b) $\frac{-3}{\sqrt{5}}$	(c) $y = \frac{-3}{\sqrt{5}}$