Assignment #1 ***Math 180*** ***Name:***

1. Given functions $f(x)=\dfrac{3x-7}{2-5x}$; $g(x)=\sqrt{7x-5}$ *and* $h(x)=15x^2+11x-14$. Evaluate the following:

a) $\dfrac{f(x+h)-f(x)}{h}$

b) $\dfrac{g(x)-g(-3)}{x+3}$

c) Determine the domain of $(g\circ h)(x)$ *and* $\dfrac{f}{h}(x)$

2. Evaluate the following limit base on the given graph of f(x)

a) $\lim_{x\to -1} f(x)$

b) $\lim_{x\to 6} f(x)$

c) $\lim_{x\to 5} f(x)$

d) $\lim_{x\to 3} f(x)$

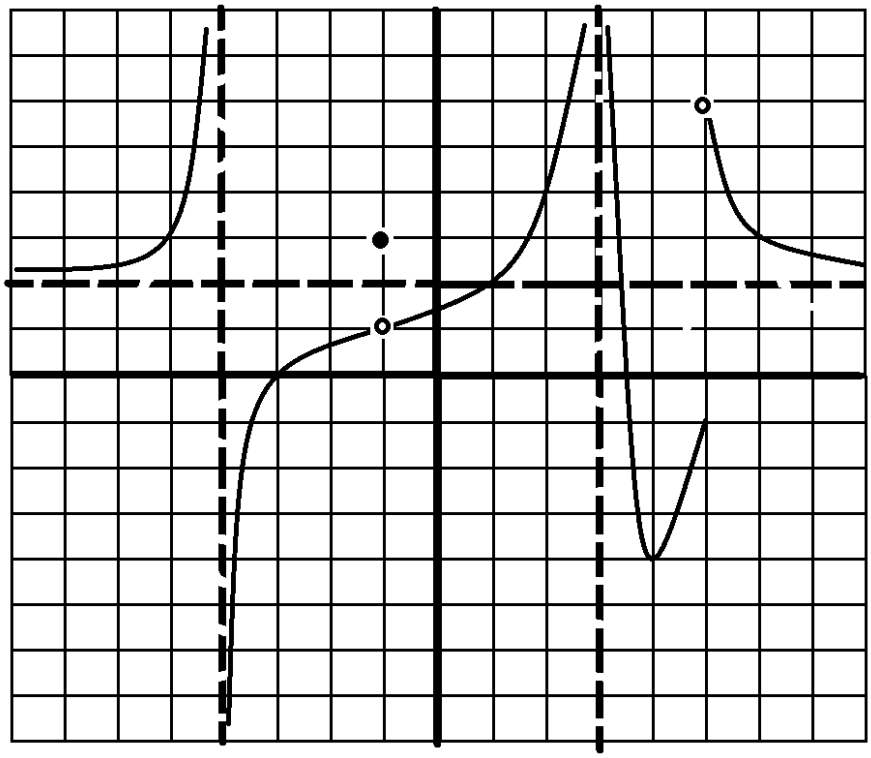
e) $\lim_{x\to -3} f(x)$

f) $\lim_{x\to -4} f(x)$

g) $\lim_{x\to -5} f(x)$

h) $\lim_{x\to \infty} f(x)$

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



3. Evaluate the following:

a) $\lim_{x\to 5} \dfrac{3x^3 - 13x^2 - 10x}{4x^2 - 21x + 5}$

b) $\lim_{x\to -1} \dfrac{\sqrt{4-5x} - 3}{7x^2 + 4x - 3}$

c) $\lim_{x\to\frac{3}{2}} \dfrac{6x^2-7x-3}{\left|2x^2+5x-12\right|}$

d) $\lim_{x\to 4} e^{\frac{2x^2-11x+12}{3x^2-10x-8}}$

e) $\lim_{x\to -2} \dfrac{7}{(x+2)^3}$

f) $\lim_{x\to -1} \dfrac{-3}{(x+1)^8}$

g) $\lim_{x\to 0} x^4 \cos\left(\dfrac{5}{x^2}\right)$

h) $\lim_{x\to 3^+} \tan\left(\dfrac{\pi x}{6}\right)$