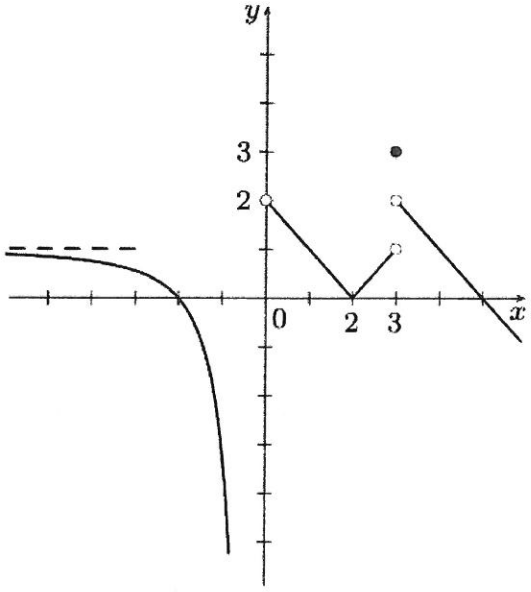
Name: _____

Unit 13 • Serafino • Precalculus S2

201-103-RE - Calculus 1

WORKSHEET: LIMITS

1. Use the graph of the function $f(x)$ to answer each question.
Use ∞, $-\infty$ or DNE where appropriate.



(a) $f(0) =$

(b) $f(2) =$

(c) $f(3) =$

(d) $\lim_{x \to 0^-} f(x) =$

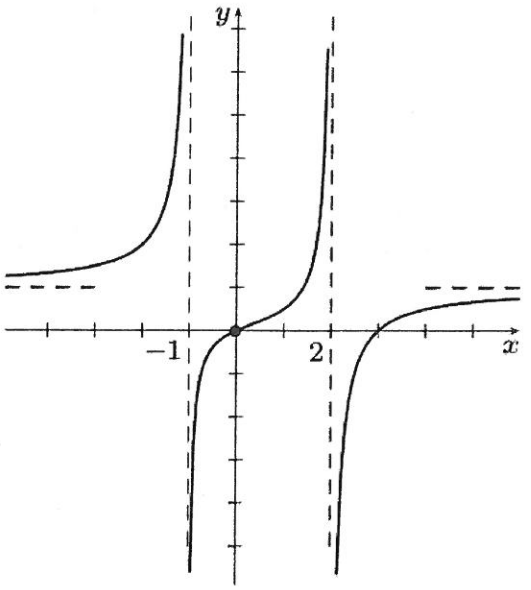
(e) $\lim_{x \to 0} f(x) =$

(f) $\lim_{x \to 3^+} f(x) =$

(g) $\lim_{x \to 3} f(x) =$

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

2. Use the graph of the function $f(x)$ to answer each question.
Use ∞, $-\infty$ or DNE where appropriate.



(a) $f(0) =$

(b) $f(2) =$

(c) $f(3) =$

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

(e) $\lim_{x \to 0} f(x) =$

(f) $\lim_{x \to 2^+} f(x) =$

(g) $\lim_{x \to \infty} f(x) =$

Do all work on separate paper. See my site for which ones you can skip.

3. Evaluate each limit using algebraic techniques.
Use ∞, $-\infty$ or DNE where appropriate.

(a) $\lim_{x\to 0} \dfrac{x^2-25}{x^2-4x-5}$

(b) $\lim_{x\to 5} \dfrac{x^2-25}{x^2-4x-5}$

(c) $\lim_{x\to 1} \dfrac{7x^2-4x-3}{3x^2-4x+1}$

(d) $\lim_{x\to -2} \dfrac{x^4+5x^3+6x^2}{x^2(x+1)-4(x+1)}$

(e) $\lim_{x\to -3} |x+1| + \dfrac{3}{x}$

(f) $\lim_{x\to 3} \dfrac{\sqrt{x+1}-2}{x^2-9}$

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

(h) $\lim_{x\to 2} \dfrac{x^2+2x-8}{\sqrt{x^2+5}-(x+1)}$

(i) $\lim_{y\to 5} \left(\dfrac{2y^2+2y+4}{6y-3}\right)^{1/3}$

(j) $\lim_{x\to 0} \sqrt[4]{2\cos(x)-5}$

(k) $\lim_{x\to 0} \dfrac{\dfrac{1}{3+x}-\dfrac{1}{3-x}}{x}$

(l) $\lim_{x\to -6} \dfrac{\dfrac{2x+8}{x^2-12}-\dfrac{1}{x}}{x+6}$

(m) $\lim_{x\to \infty} \sqrt{x^2-2}-\sqrt{x^2+1}$

(n) $\lim_{x\to -\infty} \sqrt{x-2}-\sqrt{x}$

(o) $\lim_{x\to 7} \sqrt[6]{2x-14}$

(p) $\lim_{x\to 1^-} \sqrt{3-3x}$

(q) $\lim_{x\to \infty} \dfrac{x^4-10}{4x^3+x}$

(r) $\lim_{x\to -\infty} \sqrt[3]{\dfrac{x-3}{5-x}}$

(s) $\lim_{x\to \infty} \dfrac{3x^3+x^2-2}{x^2+x-2x^3+1}$

(t) $\lim_{x\to \infty} \dfrac{x+5}{2x^2+1}$

(u) $\lim_{x\to -\infty} \cos\left(\dfrac{x^5+1}{x^6+x^5+100}\right)$

(v) $\lim_{x\to 2} \dfrac{2x}{x^2-4}$

(w) $\lim_{x\to -1} \dfrac{3x}{x^2+2x+1}$

(x) $\lim_{x\to -1} \dfrac{x^2-25}{x^2-4x-5}$

(y) $\lim_{x\to 3} \dfrac{\sqrt{x^2-5}+2}{x-3}$

(z) $\lim_{x\to 0} \dfrac{2^x+\sin(x)}{x^4}$

(A) $\lim_{x\to 1^-} \dfrac{1}{x-1} + e^{x^2}$

(B) $\lim_{x\to \infty} 2x^2-3x$

(C) $\lim_{x\to 0} \dfrac{\sqrt{x+2}-\sqrt{2-x}}{x}$

(D) $\lim_{x\to 0^+} \dfrac{e^x}{1+\ln(x)}$

(E) $\lim_{x\to \infty} \sqrt{x^2+1}-2x$

(F) $\lim_{x\to 1} \dfrac{\sqrt[3]{x}-1}{\sqrt{x}-1}$