AP Calc Warm Up – 9/17/10

Name:_____ Period:_____

1) State whether the following limits are in INDETERMINATE FORM (you DO NOT need to find the limit).

a. $\lim_{x\to 4} \frac{1}{x+8} =$

b. $\lim_{x\to 4} \frac{1}{x-4} =$

c. $\lim_{x\to 3} \frac{x^2-9}{x-3} =$

d. $\lim_{x\to \pi} \frac{\sin x}{x} =$

e. $\lim_{x\to 0} \frac{\sin x}{x} =$

AP Calc
Practice Finding Limits

Name:_____Date:_____Period:_____

Students will be able to find the limit of a function given its equation

Let's go through the process of finding a limit for the following problem:

$$\lim_{x \to 2} \frac{x^2 - 3x + 4}{x - 3}$$

Let's go through the process of finding a limit for the following problem:

$$\lim_{x \to 3} \frac{x^2 - 3x + 4}{x - 3}$$

Let's go through the process of finding a limit for the following problem:

$$\lim_{x \to 4} \frac{x^2 - 16}{x - 4} =$$

Let's go through the process of finding a limit for the following problem:

$$\lim_{x \to 2} \frac{9 - 3^x}{x - 2} =$$

Practice

1) $\lim_{x\to 5} 12$

2) $\lim_{x\to 0} \pi$

3) $\lim_{x\to 2} 4x$

4) $\lim_{x\to 5} 3x^2 - 4x - 1$

5) $\lim_{x\to 0^-} 5x^3 - 7x^2 + 2^x - 2$

6) $\lim_{y\to -1} 3y^4 - 6y^3 - 2y$

7) $\lim_{x\to 4} \frac{2x-4}{x-1}$

8) $\lim_{x\to -2} \frac{x^2+4x+4}{x^2}$

9) $\lim_{x\to 1} \frac{2x-2}{x-1}$

10) $\lim_{x\to 4} \frac{x^2-16}{x-4}$

11) $\lim_{t\to -2} \frac{t^3+8}{t+2}$

12) $\lim_{x\to 2} \frac{x^2-4x+4}{x^2+x-6}$

13) $\lim_{x\to -1} \frac{x^2+6x+5}{x^2-3x-4}$

14) $\lim_{x\to 1} \frac{x^3+x^2-5x+3}{x^3-3x+2}$

15) $\lim_{x\to 3} \frac{x}{x-3}$

16) $\lim_{x\to 5} \frac{x}{x^2-25}$

17) $\lim_{y\to 6} \frac{y+6}{y^2-36}$

18) $\lim_{x\to 4} \frac{3-x}{x^2-2x-8}$

19) $\lim_{x\to 1} \frac{4}{x^2-2x+1}$

20) $\lim_{x\to 5} \frac{x}{|x-5|}$

21) $\lim_{x\to 3} \frac{-x^2}{x^2-6x+9}$

22) $f(x)=\begin{cases} x-1, x\geq 3 \\ 2x-3, x<3 \end{cases}$ find $\lim_{x\to 3} f(x)$

23) $f(x)=\begin{cases} x^3-1, x\geq -1 \\ 2x, x<-1 \end{cases}$ find $\lim_{x\to -1} f(x)$

24) $f(x)=\begin{cases} \dfrac{x-2}{x-1}, x\geq 1 \\ \dfrac{x}{x-1}, x<1 \end{cases}$ find $\lim_{x\to 1} f(x)$

25) $\lim_{x\to 0}\dfrac{\sqrt{x+4}-2}{x}$

26) Let $f(x)=\begin{cases} x^2-2x-3, x\neq 2 \\ k-3, x=2 \end{cases}$

find k such that $\lim_{x\to 2} f(x)=f(2)$

27) $f(x)=\begin{cases} \dfrac{x^2-49}{x-7}, x\neq 7 \\ k^2-2, x=7 \end{cases}$

find k such that $\lim_{x\to 7} f(x)=f(7)$

28) $\lim_{x\to\infty} 6$

29) $\lim_{x\to\infty}(-2x+11)$

30) $\lim_{x\to-\infty}(3x^4-3x^3+5x^2+8x-3)$

31) $\lim_{x\to\infty}\dfrac{2x-3}{4x+5}$

32) $\lim_{x\to-\infty}\dfrac{7-3x^3}{2x^3+1}$

33) $\lim_{x\to\infty}\dfrac{2}{5x-3}$

34) $\lim_{x\to-\infty}\dfrac{2x+30}{6x^{12}-5}$

35) $\lim_{x\to\infty}\dfrac{4x^4}{6x^3-19}$

36) $\lim_{x\to-\infty}\dfrac{4x^2-3x-2-5x^3}{9x^2+9x+7}$

37) $\lim_{x\to\infty}\dfrac{x}{\sqrt{x^2+4}}$

38) $\lim_{x\to-\infty}\dfrac{x}{\sqrt{x^2+4}}$

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

AP Calc – Exit Slip – 9/16/10

Name:_____ Period:_____

1) Find the following limits:

a. $\lim_{x \to 3} \frac{2^{x-1} - 4}{x - 3} =$

b. $\lim_{x \to 0} \frac{\sin x}{x} =$