AP Calculus - Assignment #2.0

Name_____

I. Evaluate each limit.

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

-2

2) $\lim_{x\to 2} \sqrt[3]{2x+5}$

$\sqrt[3]{9}$

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

-3

4) $\lim_{x\to 3} -\sqrt{2x+5}$

$-\sqrt{11}$

5) $\lim_{x\to \frac{\pi}{4}} -\sin(2x)$

-1

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

$\dfrac{1}{3}$

7) $\lim_{x\to -1} \sqrt{-x+2}$

$\sqrt{3}$

8) $\lim_{x\to -2} 2x$

-4

II. Evaluate each limit.

9) $\lim_{x\to 2} \dfrac{\sqrt{x+2}-2}{x-2}$

$\dfrac{1}{4}$

10) $\lim_{x\to 9} \dfrac{\sqrt{x}-3}{x-9}$

$\dfrac{1}{6}$

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

$\dfrac{1}{2}$

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

-5

III. Evaluate each limit.

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

d.n.e.

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

$-\frac{1}{4}$

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

$\frac{1}{4}$

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

d.n.e.

IV. For each of the functions, find: (f(x + Δx) - f(x)) / (Δx)

17) $y = 3x^2 + 3$

$6x + 3\Delta x$

18) $y = 4x + 4$

4

19) $y = \sqrt{-3x+4}$

$$\frac{-3}{\sqrt{-3(x+\Delta x+4)}+\sqrt{-3x+4}}$$

20) $y = -3x + 3$

-3

21) $y = -x + 4$

-1

22) $y = \frac{2}{2x-1}$

$$\frac{-4}{(2(x+\Delta x)-1)(2x-1)}$$

23) $y = -\frac{1}{2x-1}$

$$\frac{2}{(2(x+\Delta x)-1)(2x-1)}$$

24) $y = \sqrt{2x+4}$

$$\frac{2}{(\sqrt{2(x+\Delta x+4)}+\sqrt{2x+4}}$$

25) $y = x^2 + 2$

$2x + \Delta x$

26) $y = -4x + 2$

-4

27) $y = x^2 + 5$

$2x + \Delta x$

28) $y = \sqrt{3x+5}$

$$\frac{3}{\sqrt{3(x+\Delta x)+5}+\sqrt{3x+5}}$$