Chapter 3 – L'hopital's Rule WKST Name:_____

NO CALCULATOR!

For problems #1-3, evaluate the "basic" limits by using L'hopital's Rule.

1. $\lim_{x\to 2} \dfrac{8-x^3}{2x^2+5x-18}$

2. $\lim_{x\to 3} \dfrac{x^3-3x^2-4x+12}{x-3}$

3. $\lim_{t\to 9} \dfrac{\sqrt{t}-3}{t-9}$

For problems #4-7, evaluate the AP Questions by using L'hopital's Rule.

4 $\lim_{h\to 0} \dfrac{(h+5)^6-5^6}{h}$

(A) 0 (B) 5^6 (C) $(7)5^6$ (D) 5^5 (E) $(6)5^5$

5. $\lim_{h\to 0} \dfrac{\cos\left(\frac{3\pi}{2}+h\right)-\cos\left(\frac{3\pi}{2}\right)}{h}$

(A) 1 (B) $\dfrac{\sqrt{2}}{2}$ (C) 0 (D) -1 (E) undefined

6. $\lim_{x \to 1} \dfrac{x-1}{\ln x}$ is

(A) 0 (B) $\dfrac{1}{e}$ (C) 1 (D) e (E) nonexistent

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7. If $a \neq 0$, then $\lim_{x \to a} \dfrac{x^3 - a^3}{x^4 - a^4}$ is

(A) $\dfrac{3}{4a}$ (B) $\dfrac{3}{4a^2}$ (C) $\dfrac{3}{2a}$ (D) $\dfrac{3}{2a^2}$ (E) nonexistent

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ANSWERS:

1) -12/13
2) 5
3) 1/6
4) E
5) A
6) C
7) A