Homework 8

The **due date** for this homework is **Tue 7 May 2013 12:00 AM EDT**.

Question 1

$$\lim_{x \to 2} \frac{x^3 + 2x^2 - 4x - 8}{x - 2} =$$

- $+\infty$
- 2
- 4
- 3
- 16
- 0

Question 2

$$\lim_{x \to \pi/3} \frac{1 - 2\cos x}{\pi - 3x} =$$

- $\frac{\pi}{3}$
- $\sqrt{3}$
- $\pi\sqrt{3}$
- 0
- $\frac{\pi}{\sqrt{3}}$
- $-\frac{1}{\sqrt{3}}$

Question 3

$$\lim_{x \to \pi/2} \frac{\sin x \cos x}{e^x \cos 3x} =$$

- $-\frac{e^{-\pi/2}}{3}$
- e^{-1}
- $+\infty$
- $-e^{-\pi/2}$
- $e^{-\pi/2}$
- $\frac{e^{\pi/2}}{3}$

Question 4

$$\lim_{x \to \pi} \frac{4 \sin x \cos x}{\pi - x} =$$

- 4
- $+\infty$
- $-\infty$
- -4
- The limit does not exist.
- 0

Question 5

$$\lim_{x \to 9} \frac{2x - 18}{\sqrt{x} - 3} =$$

- $+\infty$

- 2
- 6
- 0
- 12
- 4

Question 6

$$\lim_{x \to 0} \frac{e^x - \sin x - 1}{x^2 - x^3} =$$

- $-\frac{1}{6}$
- 3
- $+\infty$
- 0
- $\frac{1}{2}$
- $\frac{1}{3}$

Question 7

$$\lim_{x \to +\infty} x \ln\left(1 + \frac{3}{x}\right) =$$

- 3
- 4
- 1
- $+\infty$
- 0
- The limit does not exist.

Question 8

$$\lim_{x \to 4} \frac{3 - \sqrt{5+x}}{1 - \sqrt{5-x}} =$$

- $-\frac{1}{5}$
- $\frac{1}{5}$
- $-\frac{1}{3}$
- $\frac{1}{3}$
- -3
- 3

Question 9

$$\lim_{x \to 1} \frac{\cos(\pi x/2)}{1 - \sqrt{x}} =$$

- $+\infty$
- $\frac{\pi}{2}$
- $-\pi$
- 0
- 1
- π

Question 10

$$\lim_{x \to 0} \left(\frac{1}{x} - \frac{1}{\ln(x+1)} \right) =$$

- -1
- 0
- $+\infty$
- 1
- $\frac{1}{e}$
- $-\frac{1}{2}$

☐ In accordance with the Honor Code, I certify that my answers here are my own work.

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