Homework 7

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

Question 1

$\lim_{x \to 1} \frac{x^2 + x + 1}{x + 3} =$

- 0
- The limit does not exist.
- 2
- $\frac{3}{4}$
- 3
- $+\infty$

Question 2

$\lim_{x \to 1} \frac{\ln x}{x^2} =$

- 1
- $\frac{1}{2}$
- The limit does not exist.
- $+\infty$
- 0
- 2

Question 3

$$\lim_{x \to 0} \frac{\sec x \tan x}{\sin x} =$$

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

Question 4

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

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

Question 5

$$\lim_{x \to 0} \frac{x^4 + 3x^2 + 6x}{3x^4 + 5x} =$$

- $\frac{1}{3}$

- $\frac{6}{5}$
- $+\infty$
- The limit does not exist.
- 0
- 1

Question 6

$\lim_{x \to 0} \frac{2\cos x - 2}{3x^2} =$

- 0
- $-\frac{1}{6}$
- $\frac{1}{3}$
- $-\frac{1}{3}$
- The limit does not exist.
- $\frac{1}{6}$

Question 7

$\lim_{x \to 0} \frac{\ln^2 \cos x}{2x^4 - x^5} =$

- $\frac{1}{8}$
- 0
- $+\infty$
- 1
- The limit does not exist.

- $\frac{1}{4}$

Question 8

$\lim_{x \to 0} (3x^2 + 4x) \cot x =$

- $+\infty$
- 1
- 3
- 4
- 6
- 0

Question 9

$\lim_{x \to 0} \frac{x \cos(\sin x)}{\sin 2x} =$

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

Question 10

$\lim_{x \to 0} \frac{\sin^2 x}{\sin 2x} =$

- 1
- The limit does not exist.
- $\frac{1}{2}$
- $+\infty$
- 0
- π

Question 11

$\lim_{x \to 0} \frac{\ln(x+1)\arctan x}{x^2} =$

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

Question 12

$\lim_{s \to 0} \frac{e^s s \sin s}{1 - \cos 2s} =$

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

- $\frac{1}{2}$
- $-\infty$

Question 13

$\lim_{y \to 0} \frac{\ln(1+2y)\sin y}{y^2 \cos 2y} =$

- $\frac{1}{2}$
- 0
- 1
- $+\infty$
- 2
- The limit does not exist.

Question 14

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

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

Question 15

$$\lim_{x \to 0^+} \frac{x}{\sqrt{x}\sin 3x + x^2 + \arctan 5x} =$$

- The limit does not exist.
- $\frac{1}{15}$
- 0
- $\frac{1}{5}$
- $+\infty$
- $\frac{1}{3}$

Question 16

$$\lim_{x \to 0} \frac{\sin x - \cos x - 1}{6xe^{2x}} =$$

- 2
- 0
- $+\infty$
- 3
- The limit does not exist.
- 6

Question 17

$$\lim_{x \to 0} \frac{\arctan x - 3\sin x + 2x}{3x^3} =$$

- 1

- $\frac{1}{18}$
- 0
- $\frac{2}{3}$
- $+\infty$
- $\frac{1}{3}$

Question 18

$\lim_{x \to 0} \frac{1 - x - \cos 3x}{x^3} =$

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

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

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