Unit 3 - Week- 02-Continuity, Derivative, Maxima and Minima and Taylor's expansion

Assignment-2

The due date for submitting this assignment has passed. **Due on 2017-02-07, 23:59 IST.**
As per our records you have not submitted this assignment.

1) *1 point*

$It\ can\ be\ shown\ that\ the\ inequalities \frac{1}{2} - \frac{x^2}{24} < \frac{1-cosx}{x^2} < \frac{1}{2} hols\ for\ all\ values\ of\ x\ close\ to\ zero.\ Then\ \lim_{x\to 0}$

- $0.$
- $\frac{1}{2}$
- $-\frac{1}{2}.$
- $\sqrt{6}.$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\frac{1}{2}$

2) $Let\ f(x) = \begin{cases} x, & \text{if } x < 0 \\ x^2, & \text{if } x \geq 0. \end{cases}, then$ *0 points*

- $f'_+ = 1\ and\ f'_- = 0.$
- $f'_+ = 0\ and\ f'_- = 1.$
- $f'_+ = 1\ and\ f'_- = 1.$
- $f'_+ = 0\ and\ f'_- = 0.$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$f'_+ = 0\ and\ f'_- = 1.$

3) $The\ derivative\ of\ the\ function\ g(t) = \cot(2 + cosect)\ at\ t = \frac{\pi}{4}\ is$ *1 point*

- $\sqrt{2}cosec^2(2+\sqrt{2}).$
- $cosec^2\sqrt{2}.$
- $cosec^2(\sqrt{2}+2).$
- $\sqrt{2}cosec^2\sqrt{2}.$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\sqrt{2}cosec^2(2+\sqrt{2}).$

4) *1 point*

The 10th derivative of the function $f(x) = x^{11} + x^9 + 7x + 5$ *at* $x = \frac{1}{10!}$ *is*

- 1.
- 2.
- 11.
- 13.

No, the answer is incorrect.
Score: 0

Accepted Answers:
11.

5) *Let* $f(x) = \begin{cases} \sin x, & \text{if } -2\pi \le x < 0 \\ -x^2, & \text{if } 0 < x \le 2\pi. \end{cases}$ *. Then all the local maximizers of* f *are* 1 p

- 0.
- $-\pi, 0.$
- $-3\pi/2, 0.$
- $-3\pi/2.$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$-3\pi/2.$

6) *For the function* $f(x) = (x-1)^2(x-2)^2$, *the local minimizers are* **1 point**

- $x = 0, x = 1.$
- $x = -1, x = -2.$
- $x = 1, x = 2.$
- $x = 0, x = 2.$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$x = 1, x = 2.$

7) *Let* $f(x) = \cos(x - \pi)$ *over the interval* $[-\pi, \pi]$. *Then* $f'(c) = 0,\ c \in [-\pi, \pi]$ *for* $c = \ldots.$ **1 point**

- $\pi.$
- $0, \pi.$
- $0, \pi, -\pi.$
- $-\pi, 0, \pi, 3\pi.$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$0, \pi, -\pi.$

8) **1 point**

The error term in 5th order Taylor polynomial approximation of the function $f(x) = (x+2)^4$ *is*

- $x^4.$
- $(x+2)^4.$
- 0.
-

$x^4 + 2$.

No, the answer is incorrect.
Score: 0

Accepted Answers:
0.

9) *The 6th order Taylor polynomial of the function* $f(x) = x^2 \cos x$ *at* $x = 0$ *is given by* **1 point**

- $x^2(1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!})$.
- $x^2(1 + \frac{x^2}{2!} - \frac{x^4}{4!} + \frac{x^6}{6!})$.
- $1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!}$.
- $x^2 - \frac{x^4}{2!} + \frac{x^6}{4!}$.

No, the answer is incorrect.
Score: 0

Accepted Answers:
$x^2 - \frac{x^4}{2!} + \frac{x^6}{4!}$.

10) *Let* $y = e^x$ *and* $z = \sin 2y^2$. *Then* $\frac{dz}{dx}$ *at* $x = 1/2$ *is* **1 point**

- $4e \cos 2e$.
- $4e^{1/4} \cos 2e^{1/4}$.
- $e \cos 2e$.
- $4e^{1/4} \cos 2e^{1/4}$.

No, the answer is incorrect.
Score: 0

Accepted Answers:
$4e \cos 2e$.

Previous Page End