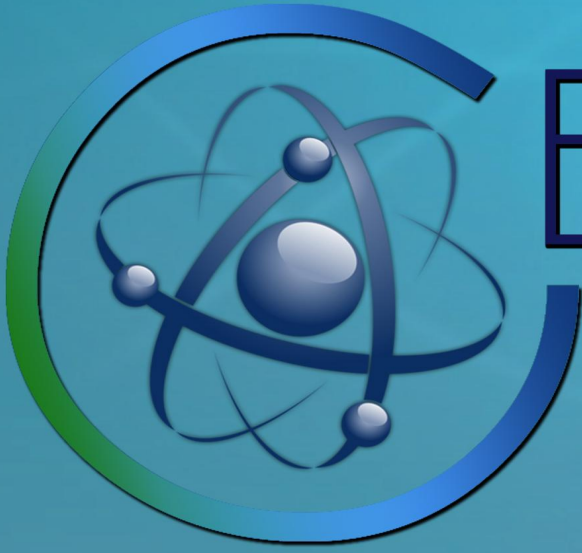




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The Hashemite University

Calculus I

Date 12-11-2012

Department of Mathematics

Second Exam

Time: One Hour

اسم الطالب: محمد صالح محمد الخوالدة الرقم الجامعي: ١٣٣١٥٦٧ الرقم المتسلسل: ٢٥

وقت المحاضرة: ١٢-١١ م اسم المدرس: الأستاذ محمد قدومي

1	2	3	4	5	6	7	8	9	10	11	12
a	a	a	a	a	a	a	a	a	a	a	a
b	b	b	b	b	b	b	b	b	b	b	b
c	c	c	c	c	c	c	c	c	c	c	c
d	d	d	d	d	d	d	d	d	d	d	d

1) Let f and g be differentiable at $x=1$, such that $f(1)=1$, $f'(1)=2$, $g(1)=-2$ and

$g'(1)=4$, then $\frac{d}{dx}(g(x)\sqrt{f(x)})|_{x=1} =$

- a) 5 b) 2 c) $-\frac{5}{2}$ d) $\frac{5}{2}$

2) If $f(2)=1$, $g(x)=\ln(x^3+1)$, and $(gof)'(2)=6$, then $f'(2)=$

- a) 7 b) -3 c) 4 d) 8

3) The equation of the tangent line to the curve

$f(x)=\sin^2 x - x \cos x^2 + 3$ at $x=0$ is given by

- a) $y=x+3$ b) $y=x-3$ c) $y=-x-3$ d) $y=-x+3$

4) The critical point(s) of $f(x)=x+\frac{4}{x}$ is (are)

- a) 0 only b) -2 and 0 and 2 c) -2 and 2 d) 2 only

5) The values of k and m that make

$$f(x) = \begin{cases} \frac{1}{x} + x & , x > 1 \\ kx - m & , x \leq 1 \end{cases} \text{ differentiable at } x=1 \text{ are:}$$

a) $k=0, m=-2$

b) $k=0, m=2$

c) $k=-1, m=2$

d) $k=1, m=2$

6) $\lim_{x \rightarrow \infty} \left(\frac{x+2}{x+7} \right)^{-2x} =$

a) e^4

b) e^6

c) e^8

d) e^{10}

7) The value of (c) such that the line $y = -x - 4$, is tangent to the curve $y = c\sqrt{x}$

a) $c = -4$

b) $c = -2$

c) $c = 2$

d) $c = 4$

8) If $2x^2 + y^2 = 2$, then $\frac{d^2y}{dx^2} =$

a) $-\frac{4}{y^3}$

b) $\frac{4}{y^3}$

c) $-\frac{6}{y^3}$

d) $\frac{6}{y^3}$

9) One of the following is an inflection point for $f(x) = \frac{x^2}{x^2+3}$

a) $(-1, \frac{1}{4})$

b) $(0, \frac{1}{3})$

c) $(1, \frac{4}{7})$

d) $(-2, \frac{4}{7})$

10) $f(x) = \frac{x^2}{x^2+3}$ increasing in

a) $[-1, 1]$

b) $[1, \infty)$

c) $(-\infty, 0]$

d) $[0, \infty)$

11) $f(x) = \frac{x^2}{x^2+3}$ concave down in

a) $[-1, 1]$

b) $(-\infty, -1) \cup (1, \infty)$

c) $(-1, 1)$

d) $[0, \infty)$

12) $f(x) = \frac{x^2}{x^2+3}$ has absolute maximum at

a) $x = -1$

b) $x = 0$

c) $x = 1$

d) non of these