الامتحان الثاني

تفاضل وتكامل (1)

Circle the correct answer (1. 5 points each).

(1) $\log_{100} x + \log_{0.1} x = 1 \Rightarrow x =$

(a) 0.0l (b) 1

(c) 100 (d) 0.1

(2) $f(X) = \tan x \Rightarrow (f^{-1})(\sqrt{3}) =$

(a) dose not exist (b) $\sqrt{3/2}$

(c) $-\pi/6$ (d) ¾

(3) The curve $f(x) = x^2 - 6x^{1/3} has\ a\ 2x$ ventecal tansent at x =

(a) 2 (b) 0

(c) 1 (d) 3

(4) $g(1) = 2,\ f'(2) = 3\ and\ (fog)'(1) = 4 \Rightarrow$
$g'(1) =$

(a) 4 (b) 4/3

(c) ¾ (d) 3

(5) The equation of the tauseut line to tlie clousve $y^4 - 2x^2 y^3 - 27 = 0 at (-1,3)$ is

(a) y = -2 x –1 (b) y = -2 x

(c) y = -2 x + 1 (d) y = 2 x –1

(6) $y - \sqrt[3]{\frac{\times(\times^2 - 1)}{(\times - 1)^2}} \Rightarrow y^\times|_{\times=2} =$

(a) $\sqrt[3]{5} / 18$ (b) $\sqrt[3]{5} / 18$

(c) ∞ (d) O

(7) $y = (lux)^{lux} \Rightarrow y'\Big|_{x=2}^{o} =$

(a) e (b) e^{-1}

(c) 1 (d) o

(8) $\underset{\times \to o}{line} \frac{4^{\sin\times} - 1}{8^{\tan\times} - 1} =$

(a) y2 (b) O

(c) ∞ (d) does not exist

(9) $\underset{x \to o^+}{line} \frac{\sin(\frac{1}{\times})}{\sin\times} =$

(a) 1 (b) o

(c) does not exist (d) ∞

(10) $lu\left(1+\frac{1}{10}\right)+lu\left(1+\frac{1}{11}\right)+lu\left(1+\frac{1}{12}\right)+\ldots+lu\left(1+\frac{1}{29}\right)=$

(a) 3 (b) 30

(c) lu3 (d) lu30

(1) Given $f(\times)=\times^{2/3}, a=-1, b=8$

(2points) (c) Show there is No $c\in(a,b)$:

$$f'(c)=\frac{f(b)-f(a)}{b-a}$$

(2points) $(\dot{u})$ Explain this does not violate the wean value theoreus.

(2) Given f(x) = $x^{5/3} - 5x^{2/3}$

(2points) (c) find all max, min, intlection goints and cuaps if away

(1points) $(\dot{u})$ find uteavats where fin iucseaivy on decnesuing

(1points) find iutesveds whene fin concave up op down

(2points) $(\dot{\omega})$ Shetch the gnaph of f.

Q1) Find all vertical and horizontaf asysmptotes for the graph

Of f(x) = $\frac{2\times^2+5\times+2}{\times^2+2\times}$

Q2) If $\frac{d}{d\times}\left[f(X^2)\right]=X^2$ $find\ f'(q)$

Q3) let f(X) - $\sqrt{x^2+5}$. Find g(x) so that $g'(x)=f'(x)$ g(-2) = 5

Q4) let $\times^2-\times y+y^2=10$ find $\frac{dy}{dx}$ and $\frac{d^2y}{dx^2}$

At the point (1,1)