

Math101 Term171  
Sec20 Quiz 6

Name	ID	Sr
------	----	----

**Instruction: choose all correct answers**

Q1) The hypotheses of the Mean value theorem are satisfied for :

- a)  $f(x) = \sqrt[5]{|x|}$  on  $[-1, 1]$
- b)  $f(x) = \frac{1}{\cos(x)}$  on  $[0, 4\pi]$
- c)  $f(x) = x^{1/3} - x + 1$  on  $[-1, 1]$
- d)  $f(x) = \cos(x)$  on  $[0, 4\pi]$
- e)  $f(x) = x^{1/2}$  on  $[0, 1]$

Q2) The function  $f(x) = \ln(1 - \log_{10} x)$  is

- a) Increasing on  $(0, 10)$
- b) decreasing on  $(0, 10)$
- c) decreasing on  $(1, \infty)$
- d) increasing on  $(0, \infty)$
- e) decreasing on  $(0, \infty)$

Q3)  $\lim_{x \rightarrow \infty} \left(\frac{x-1}{x+1}\right)^{x+1} =$

a) 1

b)  $e^{-1}$

c)  $e^{-2}$

d)  $\sqrt{e}$

e)  $e$

Q4) Let  $y = f(x) = ax^3 + bx^2 - 9x + c$ ; where  $a$ ;  $b$  and  $c$  are constants. If  $f$  has a local maximum at  $x = -1$ ; an inflection point at  $x = 1$ , and  $y$ - intercept equals to 1, then

- a)  $a = 1$ ;  $b = 0$ ; and  $c = 1$
- b)  $a = 1$ ;  $b = -3$ ; and  $c = 0$
- c)  $a = -1$ ;  $b = 0$ ; and  $c = 1$
- d)  $a = 1$ ;  $b = -3$ ; and  $c = 1$
- e)  $a = -1$ ;  $b = 3$ ; and  $c = 1$