

Math101 Term181  
Sec 13 Quiz 6

Name	ID	Sr
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**Instruction: CIRCLE one answer and SHOW all your work to get full mark**

Q1) The **SUM** of all value(s) of  $c$  satisfying the conclusion of the Mean value theorem for the function  $f(x) = x^3 + x - 1$  on  $[0, 2]$  is

a) 0

b)  $2/\sqrt{3}$

c) 3

d)  $-3$

e) 1

Q2) If  $f(2) = 4$  and  $f'(x) \geq 8$  for all  $x$ . Then a possible choice of  $f(5)$  is

a) 29

b) 30

c) 38

d) 40

e) All the above

Q3) The function  $f(x) = x\sqrt{x^2 - 4}$

- a) is increasing on  $(0, \infty)$
- b) is decreasing on  $(-2, -\sqrt{2})$  and  $(\sqrt{2}, 2)$
- c) is increasing on  $(-\infty, -2)$  and  $(2, \infty)$
- d) has a local maximum at  $x = -2$
- e) has a local maximum at  $x = 2$

Q4) The function  $f(x) = \frac{x-1}{x^2}$

- a) is concave upward on  $(0,3)$
- b) has 2 inflection points only
- c) is concave downward on  $(-\infty, 0)$  and  $(0,3)$
- d) is concave upward on  $(0, \infty)$
- e) is concave downward on  $(-\infty, 1)$  and  $(4, \infty)$

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Sec 17 Quiz 6

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**Instruction: CIRCLE one answer and SHOW all your work to get full mark**

Q1) The **SUM** of all value(s) of  $c$  satisfying the conclusion of Rolle's Theorem for the function  $f(x) = x^3 + x^2 - x + 3$  on  $[-1,1]$  is

a) 0

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

c)  $-\frac{2}{3}$

d)  $\frac{1}{3}$

e) 1

Q2) If  $f(2) = 1$  and  $f'(x) \geq 4$  for all  $x$ . Then a possible choice of  $f(5)$  is

a) 19

b)  $-7$

c) 0

d) 12

e) 4

Q3) The function  $f(x) = x\sqrt{3-x}$

- a) is decreasing on  $(2,3)$  only
- b) is increasing on  $(0, \infty)$
- c) has a local minimum at  $x = 3$
- d) is decreasing on  $(2,3)$  and  $(3, \infty)$
- e) has a local minimum at  $x = 2$

Q4) The function  $f(x) = \frac{x-1}{x^2}$

- a) is concave upward on  $(0,3)$
- b) has 2 inflection points only
- c) is concave downward on  $(-\infty, 0)$  and  $(0,3)$
- d) is concave upward on  $(0, \infty)$
- e) is concave downward on  $(-\infty, 1)$  and  $(4, \infty)$

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Sec 18 Quiz 6

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**Instruction: CIRCLE one answer and SHOW all your work to get full mark**

Q1) The **SUM** of all value(s) of  $c$  satisfying the conclusion of Rolle's Theorem for the function  $f(x) = x^3 - 3x + 7$  on  $[-1,2]$  is

- a) 3
- b) 2
- c) 1**
- d) 0
- e) 7

Q2) If  $f(2) = -1$  and  $f'(x) \geq 6$  for all  $x$ . Then a possible choice of  $f(5)$  is

- a) 16
- b) -5
- c) 0
- d) 18**
- e) 4

Q3) The function  $f(x) = x\sqrt{6-x}$

- a) has a local maximum at  $x = 6$
- b) is increasing on  $(0, \infty)$
- c) has a local minimum at  $x = 4$
- d) is decreasing on  $(4,6)$  and  $(6, \infty)$
- e) is decreasing on  $(4,6)$  only

Q4) ) The function  $f(x) = \frac{x-1}{x^2}$

- a) is concave upward on  $(0,3)$
- b) has 2 inflection points only
- c) is concave downward on  $(-\infty, 0)$  and  $(0,3)$
- d) is concave upward on  $(0, \infty)$
- e) is concave downward on  $(-\infty, 1)$  and  $(4, \infty)$

Math101 Term181  
Sec 21 Quiz 6

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**Instruction: CIRCLE one answer and SHOW all your work to get full mark**

Q1) The **SUM** of all value(s) of  $c$  satisfying the conclusion of Rolle's Theorem for the function  $f(x) = x^3 - 2x^2 - 4x + 9$  on  $[-2,2]$  is

a) 0

b)  $\frac{-2}{3}$

c)  $-\frac{4}{3}$

d)  $\frac{4}{3}$

e) 2

Q2) If  $f(3) = -8$  and  $f'(x) \geq 9$  for all  $x$ . Then a possible choice of  $f(5)$  is

a) 9

b)  $-17$

c) 0

d) 12

e) 4

Q3) The function  $f(x) = x\sqrt{9-x}$

a) is decreasing on  $(6,9)$  only

b) has a local maximum at  $x = 9$

c) is increasing on  $(0, \infty)$

d) has a local minimum at  $x = 6$

e) is decreasing on  $(6,9)$  and  $(9, \infty)$

Q4) The function  $f(x) = \frac{x-1}{x^2}$

a) is concave upward on  $(0,3)$

b) has 2 inflection points only

c) is concave downward on  $(-\infty, 0)$  and  $(0,3)$

d) is concave upward on  $(0, \infty)$

e) is concave downward on  $(-\infty, 1)$  and  $(4, \infty)$