MTH102: Elementary Mathematics Ii TMA1

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Instructions: Answer All .
After Submission, you will not be able to answer these questions

Question 1 : Evaluate the limit

$$\lim t \to 4 \frac{t - \sqrt{(3+4)}}{4 - t}$$

- $\frac{3}{4}$
- $\frac{-1}{8}$
- $\frac{-5}{8}$
- $\frac{-3}{8}$

Question 2 : Find the derivative

$$f(x) = 2x^2 - 16x + 35$$

first principle

- $3x - 5$
- $4x - 16$
- $x + 16$
- $2x - 8$

Question 3 : Differentiate

$$y = 3\sqrt{(x^2)(2x - x^2)}$$

with respect to x

- $y = \frac{10x^{\frac{2}{3}}}{3} - \frac{8x^{\frac{5}{3}}}{3}$
- $y = \frac{5x^{\frac{2}{3}}}{3} - \frac{4x^{\frac{5}{3}}}{3}$
- $y = \frac{5x^{\frac{2}{3}}}{3} + \frac{4x^{\frac{5}{3}}}{3}$

$$y = \frac{10x^{\frac{2}{3}}}{3} + \frac{8x^{\frac{5}{3}}}{3}$$

Question 4 : Given

$$y(x) = x^4 - 4x^3 + 3x^2 - 5x$$

, evaluate

$$\frac{d^4y}{dx^4}$$

- 30
- 22
- 24
- 42

Question 5 : Given

$$\frac{2x^5 + x^2 - 5}{t^2}$$

, find

$$\frac{dy}{dx}$$

by using the first principle

- c

$$-t^{-2} + 8t^{-3}$$

-

$$t^2 + 5t^{-3}$$

-

$$6t + 7t^{-3}$$

$$6t^2 + 10t^{-3}$$

Question 6 : Evaluate the limit

$$\lim x \to -\infty \frac{x^2 - 5t - 9}{2x^4 + 3x^3}$$

- 0
- 4
- 1
- 2

Question 7 : Evaluate the limit

$$\lim_{h \to 0} \frac{2(-3+h)^2 - 18}{h}$$

- 8
- 6
- 14
- 12

Question 8 : Evaluate the limit

$$\lim x \to \infty \frac{6e^{4x} - e^{-2x}}{8e^{4x} - e^{2x} + 3e^{-x}}$$

-

$$\frac{1}{2}$$

$\frac{3}{4}$

$\frac{3}{5}$

$\frac{1}{4}$

Question 9 : Differentiate with respect to x:

$$f(x) = (ax^3 + bx)$$

$ax^2 + b$

$3x^2 + 1$

$3ax^2 + b$

$3a - b$

Question 10 : Evaluate the limit

$$\lim x \to \infty \frac{2x^4 - x^2 + 8x}{-5x^4 + 7}$$

- $\frac{2}{3}$
- $\frac{1}{3}$
- $\frac{3}{4}$
- $\frac{1}{2}$

Submit