

# King Fahd University of Petroleum & Minerals

Department of Mathematical Sciences

Math 102, Section: 18, 20, 23 (052)

Quiz-1(a)

Time: 15 Minutes

Marks:...../9

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Name:

Serial #:

ID#:

Section #:

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(i) For  $f(x) = \sqrt{1-x^2}$ , use rectangle method to approximate area  $A_n$  over  $[0,1]$  when  $n = 4$ .

(ii) Evaluate:  $\int \sqrt{\sin \pi\theta} \cos \pi\theta d\theta$ .

(i)

(ii)

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Quiz-1(b)

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(i) Find area  $A(x)$  between the graph of  $f(x) = 4x - 4$  and  $[1, x]$  by a formula from geometry.

(ii) Use derivative of  $f(t) = -\frac{t^{-2}}{2}$  to state the corresponding integral formula.

(i)

(ii)

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Quiz-1(c)

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- (i) Solve the initial-value problem:

$$\frac{d^2 y}{dx^2} = 2 \cos x - 5 \sin x$$

where  $y'(\pi) = 3$  and  $y(\pi) = 2 + 6\pi$ .

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**Quiz-1(d)**

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(i) Approximate area  $A_n$  of the curve  $f(x) = 4 - 2x$  over  $[0, 2]$  for  $n = 2$ .

(ii) Evaluate:  $\int \tan^3 5x \sec^2 5x dx$ .

(i)

(ii)