

KFUPM      SEM I (Term 091)    Name: \_\_\_\_\_    Serial #: \_\_\_\_\_

MATH 101    Quiz # 5                    ID: #: \_\_\_\_\_                    Sec. #: \_\_\_\_\_

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1. (3-points) Use linear approximation (or differentials) to estimate the number  $\sqrt{8.95}$ .  
**(Put your answer in simplest rational number form).**

2. (3-points) Find the slope of the tangent line to the graph of

$$y = \sinh(2x) \text{ at } x = \ln \sqrt{2}.$$

**(Put your answer in simplest rational number form).**

3. (4-points) Given  $f(x) = 2 \sin x + \sin 2x$   $[2\pi, 3\pi]$ .

(a) Find the critical numbers.

(b) Find the absolute maximum and the absolute minimum values of  $f$ .

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1. (3-points) Use linear approximation (or differentials) to estimate the number  $\sqrt{9.05}$ .  
**(Put your answer in simplest rational number form).**

2. (3-points) Find the slope of the tangent line to the graph of

$$y = \sinh \frac{1}{2}x \text{ at } x = \ln 4.$$

**(Put your answer in simplest rational number form).**

3. (4-points) Given  $f(x) = 2 \sin x + \sin 2x$   $[3\pi, 4\pi]$ .

(a) Find the critical numbers.

(b) Find the absolute maximum and the absolute minimum values of  $f$ .

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1. (3-points) Use linear approximation (or differentials) to estimate the number  $\sqrt{15.95}$ .  
**(Put your answer in simplest rational number form).**

2. (3-points) Find the slope of the tangent line to the graph of

$$y = \sinh(3x) \text{ at } x = \ln \sqrt[3]{2}.$$

**(Put your answer in simplest rational number form).**

3. (4-points) Given  $f(x) = 2 \sin x + \sin 2x$   $[4\pi, 5\pi]$ .

(a) Find the critical numbers.

(b) Find the absolute maximum and the absolute minimum values of  $f$ .

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1. (3-points) Use linear approximation (or differentials) to estimate the number  $\sqrt{16.05}$ .  
**(Put your answer in simplest rational number form).**

2. (3-points) Find the slope of the tangent line to the graph of

$$y = \sinh\left(\frac{1}{3}x\right) \text{ at } x = \ln 8.$$

**(Put your answer in simplest rational number form).**

3. (4-points) Given  $f(x) = 2 \sin x + \sin 2x$   $[5\pi, 6\pi]$ .

(a) Find the critical numbers.

(b) Find the absolute maximum and the absolute minimum values of  $f$ .