

**King Fahd University of Petroleum and Minerals**  
**Department of Math & Stat**  
**Math 132 Section # 1, 5 (092)**  
**Quiz 3(a)**

Time: 20 minutes

Marks: \_\_\_\_\_/9

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Name: \_\_\_\_\_ Section #: \_\_\_\_\_

ID #: \_\_\_\_\_ Serial #: \_\_\_\_\_

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1. If  $p$  is price per unit and  $q$  is the number of units, then the demand equation is given by  $p = \frac{80 - q}{4}$  where  $0 \leq q \leq 80$ . Find the maximum revenue.

2. Find all asymptotes of the function  $f(x) = \frac{1 + x^2}{1 - x^2}$ .

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1. For  $f(x) = x^4 - 16$ , find (i) interval on which  $f$  is decreasing, (ii) interval on which  $f$  is increasing, (iii) a relative minimum value of  $f$ .

2. For  $f(x) = \frac{3 - x^4}{x^3 + x^2}$ , find vertical, horizontal and oblique asymptotes, if they exist.

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1. For  $f(x) = \frac{x}{x^2 + 1}$ , find absolute maximum and absolute minimum on  $[0, 2]$ .

2. Find horizontal and vertical asymptotes, if any, for the function  $y = e^x - 1$ .