

King Fahd University of Petroleum and Minerals
Faculty of Science – Per-Year Math Program
Math 001 - Term 032
Recitation hour (2.4&2.5)

Please cover at least FOUR questions

Question1

Given $f(x) = -x^2 + 2x + 3$.

- a. Find the vertex and write $f(x)$ in the standard form
- b. Find the equation of the axis of symmetry
- c. Sketch the graph of $f(x)$. Show the axis of symmetry, x – and y – intercepts.
- d. Find, if any, the maximum or the minimum value of $f(x)$
- e. Find the range of $f(x)$
- f. Determine the interval in which $f(x)$ is increasing
- g. Determine the interval in which $f(x)$ is decreasing

Question2

If a rectangle has perimeter 800 meters, then find the maximum area of this rectangle.

Question3

Classify each of the of following functions as an even function, an odd function, or neither an even nor an odd function

- a. $f(x) = x^3 - x$
- b. $f(x) = 5$
- c. $f(x) = x - 1$

Question4

Determine whether the graph of the equation $|x| + |y - 1| = -y^2$ is symmetric with respect to the x – axis, y – axis, or the origin.

Question5

If the graph of the equation $y = 2x^2 - 2$ is shifted horizontally one unit left and vertically two units up, then find the equation of the new graph.

Question6

Use the graph of $f(x) = |x|$ to graph $y = -f(x + 2) - 1$