

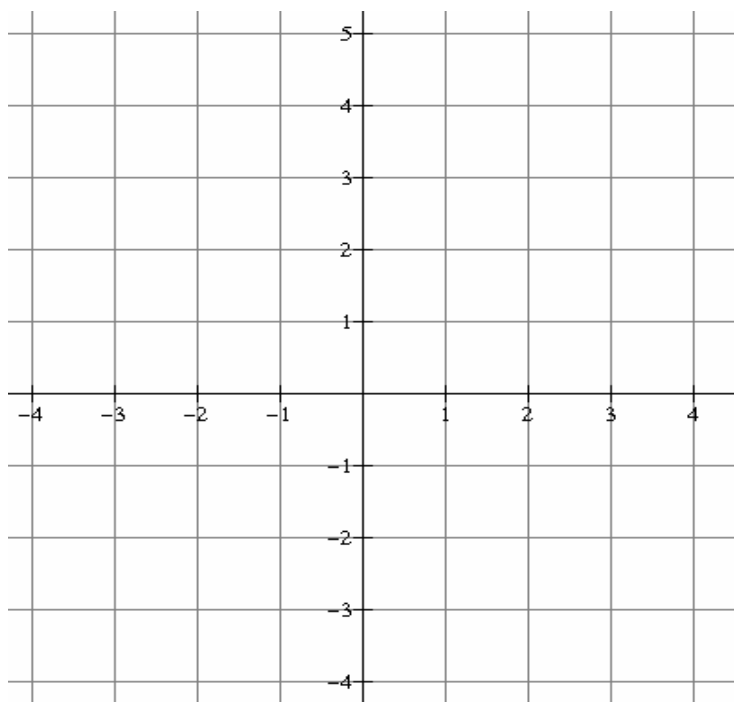
King Fahd University of Petroleum and Minerals
College of Science, Math Prep-Year Program
Math 001- Term 051
Quiz# 4

Name: _____ **S/N:** _____ **ID:** _____ **Sec:** _____

Question1 (3+1+1 pts)

$$\text{Given } F(x) = \begin{cases} 2 & \text{if } x \leq -1 \\ x^2 & \text{if } -1 < x \leq 1 \\ -x - 1 & \text{if } 1 < x \leq 3 \end{cases}$$

I. Sketch the graph of $F(x)$



II. Find the **range** of $F(x)$

III. Find the interval(s) on which $F(x)$ is **decreasing**

Question2 (2pts)

Find the equation of the line that passes through the point (3, 7) and perpendicular the line passing through the points (0, 1) and (-2, 3)

Question3 (2 pts)

If $x = 3$ is the axis of symmetry of the parabola of $f(x) = -x^2 + 2cx + c^2 + 4$, where c is a constant, then

I. Find the value of c

II. Find the maximum value of $f(x)$