

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

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

Question1 :(4pts)

$$A = \{y \mid y = x^2 - 1, x \text{ is integer}, -2 < x < 3\}$$

If $B = \{x \mid x \text{ is a composite number} < 12\}$, then find $A \cap (B \cup C)$.

$$C = \{x \mid x \text{ is the smallest even prime number}\}$$

Solution

$$A = \{0, -1, 3\}$$

$$B = \{4, 6, 8, 9, 10\}$$

$$C = \{2\}$$

$$B \cup C = \{2, 4, 6, 8, 9, 10\}$$

$$A \cap B \cup C = \Phi$$

Question2 :(3pts)

Write the expression $|5x - 3| + |x - 4|$, $1 < x < 2$ without the absolute value notation.

Solution

$$|5x - 3| + |x - 4| = 5x - 3 - (x - 4) = 4x + 1$$

Question3 :(3pts)

If $\left(\frac{x^{2-n} y^{2m} x}{y^{-m} x^{-n} y^{3m}} \right)^2 = x^{p+1} y^q$, then find the values of p and q .

Solution

$$\left(\frac{x^{2-n} y^{2m} x}{y^{-m} x^{-n} y^{3m}} \right)^2 = \left(\frac{x^{2-n} x^n y^{2m} x}{y^{2m}} \right)^2 = (x^3 y^0)^2 = x^6 y^0 = x^{p+1} y^q \Rightarrow p = 5 \text{ \& } q = 0$$