Assignment 1

The due date for submitting this assignment has passed.

Due on 2021-02-03, 22:59 IST.

As per our records you have not submitted this assignment.

[Week 1, Lectures 1,2,3, Topics: The Real line, Absolute value, Functions.]

In each of the following questions, choose the correct option.

1) \( \{ x \in \mathbb{R} : |x + 1| = 1 \} \) is equal to
   \[ \begin{align*}
   &\{0\} \quad \text{1 point} \\
   &\{-1\} \\
   &\{-1, 1\} \\
   &\text{Neither}
   \end{align*} \]

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   \[ \{0\} \]

2) \( \{ x \in \mathbb{R} : |1 - x^2| > |x| \} \) is equal to
   \[ \begin{align*}
   &\langle -\infty, 1 \rangle \cup (5, \infty) \quad \text{1 point} \\
   &\langle -\infty, -1 \rangle \cup (3, \infty) \\
   &\langle -\infty, -5 \rangle \cup (1, \infty) \\
   &\langle -\infty, -5 \rangle \cup (1, \infty)
   \end{align*} \]

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   \[ \langle -\infty, -1 \rangle \cup (5, \infty) \]

3) The equation of the line passes through \((-2, -3)\) and perpendicular to the line \(3x - 5y = 1\), is
   \[ \begin{align*}
   &5x + 3y + 19 = 0 \\
   &-5x + 3y + 19 = 0 \\
   &5x - 3y + 19 = 0 \\
   &5x - 3y - 19 = 0
   \end{align*} \]

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   \[ 5x + 3y + 19 = 0 \]

4) The graph of \( y = x^{10} \) is
   \[ \begin{align*}
   &\text{symmetric about the origin} \quad \text{1 point} \\
   &\text{symmetric about the } x\text{-axis} \\
   &\text{symmetric about the } y\text{-axis} \\
   &\text{Neither}
   \end{align*} \]

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   \[ \text{symmetric about the origin} \]

5) The graph of \( y = x^{10} \) is
   \[ \begin{align*}
   &\text{symmetric about the origin} \quad \text{1 point} \\
   &\text{symmetric about the } x\text{-axis} \\
   &\text{symmetric about the } y\text{-axis} \\
   &\text{Neither}
   \end{align*} \]

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   \[ \text{symmetric about the origin} \]

6) The graph of \( y = x^2 - 3x - 1 \) is
   \[ \begin{align*}
   &\text{symmetric about the origin} \quad \text{1 point} \\
   &\text{symmetric about the } x\text{-axis} \\
   &\text{symmetric about the } y\text{-axis} \\
   &\text{Neither}
   \end{align*} \]

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   \[ \text{symmetric about the } y\text{-axis} \]

7) Let \( f(x) = |x| \) and \( g(x) = \sqrt{x - 1} \). Then,
   \[ \begin{align*}
   &\text{if } g(x) = \sqrt{|x| - 1} \quad \text{1 point} \\
   &\text{if } g(x) = \sqrt{x - 1} \quad \text{1 point} \\
   &\text{if } g(x) = \sqrt{|x| - 1} \quad \text{1 point}
   \end{align*} \]

   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   \[ \text{if } g(x) = \sqrt{|x| - 1} \]