1. Solution of $|x-1| \geq |x-3|$ is

(1) $x \leq 2$
(2) $x \geq 2$
(3) $[1,3]$
(4) $[1,3)$

2. Solve for x: $\left|\frac{x^2+6}{5x}\right| \geq 1$

(1) $(-\infty,\ -3)$
(2) $(-\infty,\ -3) \cup (3,\ \infty)$
(3) R
(4) $(-\infty,\ -3] \cup [-2,\ 0) \cup (0,\ 2] \cup [3,\ \infty)$

3. The solution set of the inequality, $2 - \log_2(x^2+3x) \geq 0$ is

(1) $[-4,1]$
(2) $[-4,-3) \cup (0,1]$
(3) $(-\infty,-3) \cup (1,\infty)$
(4) $(-\infty,-4) \cup [1,\infty)$

4. Set of all real values of x satisfying the in equation $\frac{\log_2(x^2-5x+4)}{\log_2(x^2+1)} > 1$ is

(1) $\left(-\infty, \frac{3}{5}\right) - \{0\}$
(2) $(-\infty, 1) - \{0\}$
(3) $\left(\frac{3}{5}, \infty\right)$
(4) $(4, \infty)$

5. The set of real values of x for which $\log_{0.2} \frac{x+2}{x} \leq 1$ is

(1) $\left(-\infty, \frac{-5}{2}\right] \cup (0, \infty)$
(2) $\left[\frac{5}{2}, +\infty\right)$
(3) $(-\infty, -2) \cup (0, \infty)$
(4) None of these

6. The solution set of $x - \sqrt{1-|x|} < 0$, is

(1) $\left[-1, \frac{-1+\sqrt{5}}{2}\right)$
(2) $[-1, 1]$
(3) $\left[-1, \frac{-1+\sqrt{5}}{2}\right]$
(4) $\left(-1, \frac{-1+\sqrt{5}}{2}\right)$

7. Let $[x]$ denote the greatest integer $\leq x$. If $f(x) = [x]$ and $g(x) = |x|$, then the value of $f\left(g\left(\frac{8}{5}\right)\right) - g\left(f\left(-\frac{8}{5}\right)\right)$ is

(1) 2
(2) -2
(3) 1
(4) -1

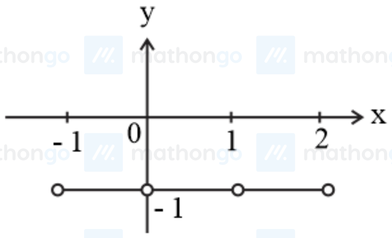
8. If $y = 3[x] + 1 = 4[x-1] - 10$, where $[\cdot]$ represents greatest integer function, then $[x+2y]$ is

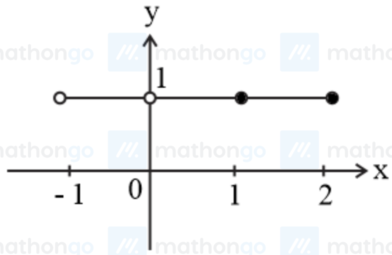
(1) 76
(2) 61
(3) 107
(4) 67

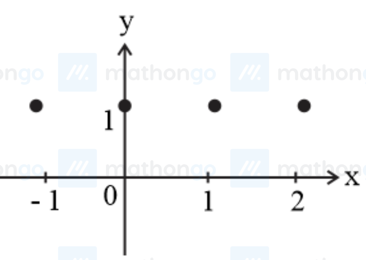
9. If $[x]^2 - 5[x] + 6 = 0$, where $[\cdot]$, denotes the greatest integer function, then

(1) $x \in [3, 4]$.
(2) $x \in (2, 3]$.
(3) $x \in [2, 3]$.
(4) $x \in [2, 4)$.
(5) $x \in R$.

10. Graph of $y = \{x\} + \{-x\}$ in the interval $[-1,\ 2]$ is (where $\{\cdot\}$ denotes fractional part function).

(1)


(2)


(3)


(4)