Problem: Find the maximum and minimum of \(|a - b| + |b - c| + |c - a|\), if integer numbers \(a, b,\) and \(c\) satisfy the following relation:

\[(a - b)^3 + (b - c)^3 + (c - a)^3 = 60\]

Solution: Note that

\[(a - b)^3 + (b - c)^3 + (c - a)^3 = 3(a - b)(b - c)(c - a).\]

Therefore, \((a - b)(b - c)(c - a) = 20\). Put \(a - b = x, b - c = y, c - a = z\). Now we have a system of two equations

\[
\begin{align*}
xyz &= 20 \\
x + y + z &= 0.
\end{align*}
\]

The integer solutions are \((5, -4, -1), (-5, 4, 1)\) and their permutations. Thus, the expression \(|a - b| + |b - c| + |c - a|\) is a constant, and the maximum and minimum of this expression is 10.