

Homework 12

This problem has two parts, each part is worth 5 points.

(a) Let A be a set consisting of 10 distinct integers, none of which being a multiple of 10. Show that there are two distinct elements a and b of A such that $a - b$ is a multiple of 10.

(b) Let B be a set consisting of 11 distinct integers, none of which being a multiple of 6. Show that there are three distinct elements a, b, c of B such that $(a - b)(b - c)(c - a)$ is a multiple of 216.