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Alexander Berkovich* (alex@uf1.edu). *On some implications of 1907 Hurwitz formula.*

I start by showing that a 1907 Hurwitz formula is a special case of the Siegel formula for ternary quadratic forms. I then employ the 1907 Hurwitz formula and a special case of the Jacobi triple product identity to prove certain conjectures of Kaplansky. In particular, I will show that $9x^2 + 16y^2 + 36z^2 + 16yz + 4xz + 8xy$ represents, exclusively, all positive integers not of the form

$$4^a(8m + 7)$$

$$4^a(8m + 3), a = 0, 1, 2$$

$$4^a(4m + 2), a = 0, 1, 2$$

$$4^a(8m + 5), a = 0, 1$$

$$M^2, 4M^2,$$

where a, m, M are non-negative integers and M is generated by 1 and primes congruent to 1 (mod 4). (Received September 12, 2014)