Diophantine equations

1. Diophantine equations are polynomial equations, usually in two or more unknowns, such that only integer solutions are sought.
2. A Diophantine equation equates two or more monomials, each of degree 1 in one of the variables, to a constant.
3. An exponential Diophantine equation is one in which exponents on terms can be unknowns.

Problems

1. Given integers a, b, c, find the conditions on a, b, c such that there is an integer solution x, y to $ax + by = c$.
2. Find the positive integer solutions to the equation $3^x + 4^y = 5^z$
3.