

We can represent a pair of nonnegative integers, a and b , with the integer that is the product $2^a 3^b$. This is because we can always extract a or b by dividing by the base of the other exponent (so 3 if looking for a or 2 if looking for b) until it is no longer possible (to get an integer, meaning the number modulo 3 is not 0), at which point 2^a or 3^b remains. From this point, take the logarithm¹ of the base (2 for a and 3 for b) to recover a or b .

¹This can be done without a log primitive by multiplying the base over and over again until the integer is reached; the value is the number of multiplications performed.