Laboratorio 10: Programación entera

1.

In[431]:=

```
ResolverSistema[A_, b_] := Module[{X, Y, I, G, h, solution},
   X = Array[x, Dimensions[A][[1]]];
   Y = Array[y, Dimensions[A][[2]]];
   I = Table[
     Y[[j]] - Product[X[[k]]^A[[k]][[j]], {k, Dimensions[A][[1]]}],
     {j, 1, Dimensions[A][[2]]}];
   G = GroebnerBasis[I, Join[X, Y], MonomialOrder → Lexicographic];
   h = PolynomialReduce[
      Product[X[[k]]^b[[k]], {k, Dimensions[A][[1]]}],
      G, Join[X, Y]
     ][[2]];
   If[SubsetQ[Y, Variables[h]],
    solution = Exponent[h, #] & /@ Y;
    Return[solution];
   ];
   Return[$Failed];
  ];
```

In[432]:=

```
A = {
   {3, 2, 1, 1},
   {4, 1, 1, 0}
  };
b = {10, 5};

ResolverSistema[A, b]
```

Out[434]=

```
{0, 0, 5, 5}
```