Week #10 Exercises

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1.
   1. Find integers x and y such that:
      $$938 * x + 242 * y = gcd(938, 242)$$
   2. Find integers j and k such that:
      $$938 * j + 242 * k \quad = \quad 12$$

2. Find the inverse of 23 *mod* 31
   i.e. find $0 < x < 31$ such that $23 *_{31} x = 1$.
   Hint: Find x, y such that $31 * x + 23 * y = 1$ and from this find $0 < x < 31$ such that $23 *_{31} x = 1$.
   Note: $-(k \bmod n) \equiv_n n - (k \bmod n)$.