Week #11 Exercises

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1. Find integers x and y such that:

$$1785 * x + 374 * y = gcd(1785, 374)$$

2. Find the inverse of $19 \; mod \; 23$
   i.e. find $0 < x < 23$ such that $19 *_{23} x = 1$.
   Hint: find integers x_0 and y_0 such that $23 * x_0 + 19 * y_0 = 1$
   and from this find $0 < x < 23$ such that $19 *_{23} x = 1$.
   Note: $-(k \; mod \; n) \equiv_n n - (k \; mod \; n)$.