Big O is a set, i.e. a category. $10n = O(n)$ is a shortcut for $10n \in O(n)$. We know that $10n$ is in the category of functions shaped like n.

Likewise, $10n^3 + 75n^2 - 5200n + 1000007$ is in the category of functions shaped like n^3, so it is $O(n^3)$.

Formally:

$$O(g(n)) = \{f(n) | \exists c, n_0 > 0 \wedge f(n) \leq c \bullet g(n), \forall n > n_0\}$$

Modular exponentiation: $2^{25 \bmod 20} = 2^5 = 32 \bmod 20 = 12$

Data: x, y, N
Result: $x^{y \bmod N}$
if $y = 0$ **then**
  return 1;
end
z = modexp(x, $\lfloor \frac{y}{2} \rfloor$, N);
if y *is even* **then**
  return $z^2 \bmod N$;
end
else
  return $x \bullet z^2 \bmod N$;
end