SOLUTIONS: PROBLEM SET 16 FROM SECTION 7.2

2.

    (a) $\tau(36) = 9$
    (b) $\tau(99) = 6$
    (c) $\tau(144) = 15$
    (d) $2^8 = 256$
    (e) 129600
    (f) 41040

4. Those integers that can be expressed in the form n^2 or $2n^2$.

10. Cubes of primes and products of two distinct primes.

12. $\sigma(n)$ is the sum of positive integers, including both 1 and n. Hence, $\sigma(n) > n$. Hence solutions of $\sigma(n) = k$ can only exist among integers less than k, so there are at most finitely many solutions for any given k.