

Chapter 7.1, Problem 10E

Problem

Let D be the set of all finite subsets of positive integers. Define a function $T: \mathbf{Z}^+ \rightarrow D$ as follows:
For each positive integer n , $T(n)$ = the set of positive divisors of n .

Find the following:

a. $T(1)$

b. $T(15)$

c. $T(17)$

d. $T(5)$

e. $T(18)$

f. $T(21)$

Step-by-step solution

Step 1 of 7

Given that D is the set of all finite subset of positive integer and a function $T: \mathbf{Z}^+ \rightarrow D$

For each positive integer n , $T(n)$ = the set of positive divisor of n .

Step 2 of 7

(a) $T(1)$ = set of positive divisors of 1
= $\{1\}$ this set contain one element.

Step 3 of 7

(b) $T(15)$ = the set of positive divisors of 15
= $\{1, 3, 5, 15\}$ this set contain four elements.

Step 4 of 7

(c) $T(17)$ = the set of positive divisors of 17
= $\{1, 17\}$ this set contain two elements.

Step 5 of 7

(d) $T(5)$ = the set of positive divisors of 5
= $\{1, 5\}$ this set contain two elements.

Step 6 of 7

(e) $T(18)$ = the set of positive divisors of 18
= $\{1, 2, 3, 6, 9, 18\}$ the set contain six elements.

Step 7 of 7

(f) $T(21)$ = the set of positive divisors of 21
= $\{1, 3, 7, 21\}$