Problem

Define a function *S: Z+ → Z+* as follows: For each positive integer *n*,

S(*n*)= the sum of the positive divisors of *n*.

Find the following:

a. *S*(1)

b. *S*(15)

c. *S*(17)

d. *S*(5)

e. *S*(18)

f. *S*(21)

Step-by-step solution

Step 1 of 7

Given that

$S : \square^{+} \rightarrow \square^{+}$, for each positive integer *n*.

$S(n) =$ the sum of positive divisor of *n*.

Step 2 of 7

(a) $S(1) =$ the sum of positive divisor of 1

$= 1$

Step 3 of 7

(b) $S(15) =$ the sum of positive divisor of 15

$= (1 + 3 + 5 + 15)$ [Since 1, 3, 5, 15 are the positive divisor of 15]

= 24

Step 4 of 7

(c) $S(17) =$ the sum of positive divisor of 17 are (1 and 17)

$= (1 + 17)$

= 18

Step 5 of 7

(d) $S(5) = $ the sum of positive divisor of 5

$= (1+5)$ [Since 1 and 5 are only]

= 6

Step 6 of 7

(e) $S(18) = $ the sum of positive divisor of 18

$= (1+2+3+6+9+18)$

$= 39$

Step 7 of 7

(f) $S(21) = $ the sum of positive divisor of 21

$= (1+3+7+21)$

= 32