

$f$  is a function defined for all positive integers  $n$ . If  $f(4) = 4$  and  $f(2n) = 2f(n)$  for all integers  $n$ , which of the following could be the definition of  $f$ ?

(a)  $f(n) = n - 2$

(b)  $f(n) = n$

(c)  $f(n) = 2n$

(d)  $f(n) = 4$

(e)  $f(n) = 2n - 4$