Question 4: If $\log_7 2 = k$, then $\log_{49} 28$ is equal to

(a) (1+2k)/4

(b) (1+2k)/2

(c) (1+2k)/3

(d) none of the above

Solution:

Given $\log_7 2 = k$

$\log_{49} 28 = \log_{7^2} 28$

$= ½ \log_7 28$

$= ½ \log_7 (4 \times 7)$

$= ½ \log_7 4 + ½ \log_7 7$

$= ½ \log_7 2^2 + ½$

$= \log_7 2 + ½$

$= k + ½$

$= (2k+1)/2$

Hence option b is the answer.