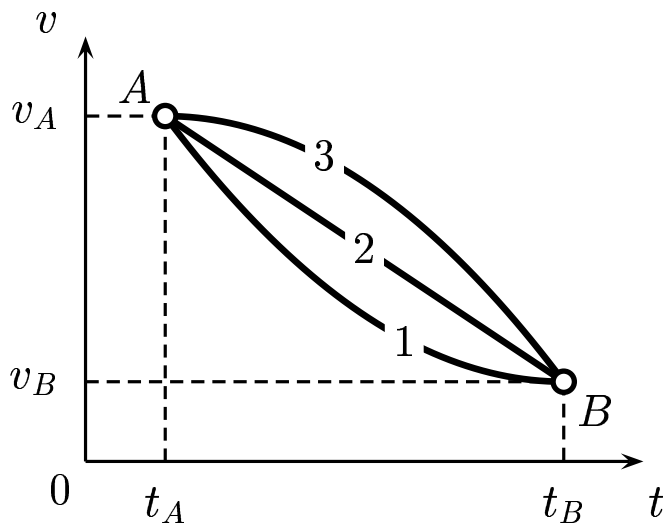


Consider three velocity curves between time points  $A$  and  $B$ .



The position displacement

$$S_{AB} \equiv s_B - s_A,$$

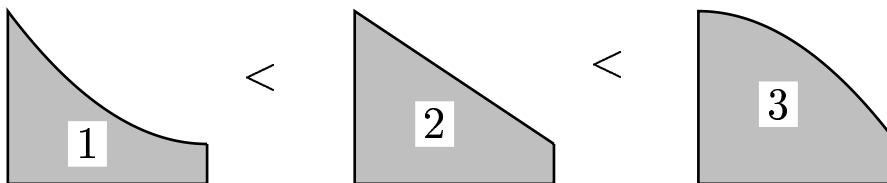
when  $a$  is constant.

Choose the correct relationship among the displacement  $S_1$ ,  $S_2$ , and  $S_3$ , where  $S_1$ ,  $S_2$ , and  $S_3$  are the displacements along the velocity curves 1, 2, and 3 (shown in the figure).

- A)  $S_1 < S_2 < S_3$
- B)  $S_1 = S_2 = S_3$
- C)  $S_1 > S_2 > S_3$

$$\Delta s \equiv \int_A^B v dt$$

By inspection  $\text{area}(1) < \text{area}(2) < \text{area}(3)$ , in turn  $S_1 < S_2 < S_3$ .  
It therefore follows that



Answer **A**.