

**Task.** Write in Logarithmic Form:  $125 = 5^3$ .

A.  $\log_{125} 5 = 3$

B.  $\log_3 125 = 5$

C.  $\log_5 125 = 3$

**Solution.** Recall that for  $a, b, c > 0$  and  $b \neq 1$  the relation

$$\log_a b = c$$

is equivalent to

$$b = a^c.$$

We have that

$$125 = 5^3,$$

so  $a = 5$ ,  $b = 125$  and  $c = 3$ . Hence the latter identity is equivalent to  $\log_a b = c$ , i.e.

$$\log_5 125 = 3.$$

Thus the correct answer is C.