

The integral

$$\int_2^4 \frac{\log x^2}{\log x^2 + \log (36 - 12x + x^2)} dx,$$

is equal to :

- ✓ (1) 1
- (2) 6
- (3) 2
- (4) 4

$$\int_a^b f(x) dx = \int_a^b f(a+b-x) dx$$

$$I = \int_2^4 \frac{\log x^2}{\log x^2 + \log (6-x)^2} dx$$

$$\therefore I = \int_2^4 \frac{\log (6-x)^2}{\log (6-x)^2 + \log x^2} dx \quad \left. \vphantom{\int_2^4} \right\} \text{Add}$$

$$\therefore 2I = \int_2^4 dx = 2 \Rightarrow I = 1$$

\therefore Correct option is (1)