Question

Logarithmic function

1. e^ln(6x)=

A: ln(x)

B: 6x

C: 6ln(x)

D: ln(6)

Solution

According to logarithms' properties we have

$$e^{\ln(x)} = x.$$

Take $6x$ instead of x in this formula. Then

$$e^{\ln(6x)} = 6x.$$

Answer: B: 6x.

Question

2. log(10^6x^2)=

A: 12

B: 6x^2

C: 6+2log(x)

D: 12log(x)

Solution

According to logarithms' properties we have

$\log_a(10^6 x^2) = \log_a(10^6) + \log_a(x^2),$

$\log_a(10^6) = 6\log_a(10),$

$\log_a(x^2) = 2\log_a(x).$

Then

$\log_a(10^6 x^2) = 6\log_a(10) + 2\log_a(x).$

A logarithm $\log_a(10)$ can be written without a base, like this: log(10). This usually means that the base is really 10. Then log(10)=1 and

$$\log(10^6 x^2) = 6 + 2\log(x).$$

Answer: C: 6+2log(x).