

Calculus Review:

True or False?

T ① $\int_2^1 t^{-1} dt = \ln(1/2)$.

T ② $\frac{d}{dx} \{\ln(f(x))\} = \frac{f'(x)}{f(x)}$.

F ③ $\frac{d}{dx} \{e^{f(x)}\} = e^{f'(x)}$.

T ④ The derivative of $\ln(2x)$ with respect to x is $1/x$.

T ⑤ $\int \frac{x}{1+x^2} dx = \ln(\sqrt{1+x^2}) + C$.

T ⑥ $\int_0^{\ln 5} e^{2x} dx = 12$.

F ⑦ $2^\pi = e^{2 \ln(\pi)}$.

T ⑧ $2^\pi = e^{\pi \ln(2)}$.

T ⑨ $\log_{10}(e) = 1/\ln(10)$

F ⑩ $\int_0^{\pi/4} \tan(x) dx = -\ln 2$

F ⑪ The derivative of 2^x with respect to x is 2^x .

F ⑫ If $a > 0$ then $\ln(a) > 0$.

F ⑬ If $x > 0$ then $(\ln x)^8 = 8 \ln(x)$.

T ⑭ If $x < 0$ then $\ln(x^8) = 8 \ln(-x)$.

F ⑮ $\frac{d}{dx} \{\ln(10)\} = \frac{1}{10}$.

F ⑯ $\frac{d}{dx} \{10^x\} = x10^{x-1}$.

T ⑰ $\int_2^8 \frac{1}{x} dx = 2 \ln 2$

T ⑱ If $a > 0$ and $b > 0$ then $\ln(ab) = \ln(a) + \ln(b)$.

F ⑲ If $a > 0$ and $b > 0$ then $\ln(a+b) = \ln(a) \ln(b)$.