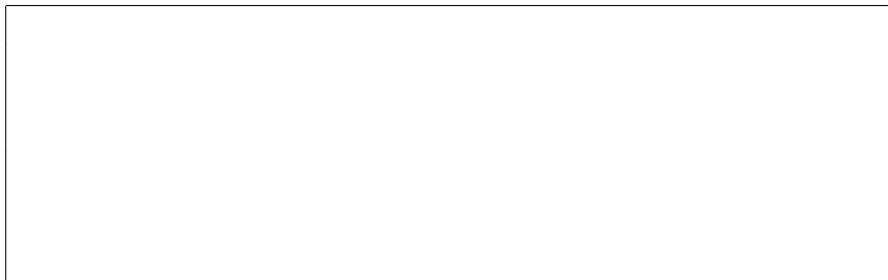


**Question.** *What is an exponent?*

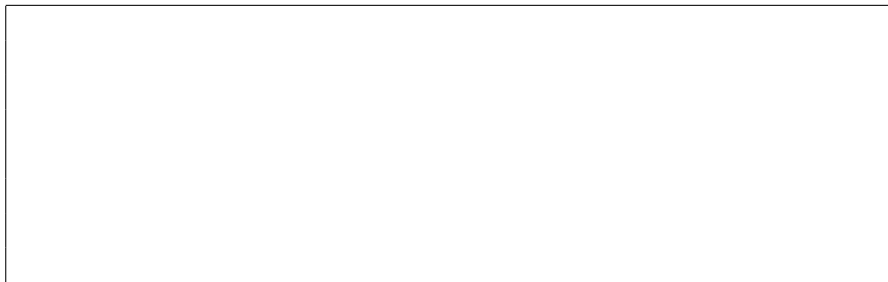


Let  $A$  and  $B$  be positive real numbers and  $p$  any number. For each of the following expressions, find an equivalent expression that only involves  $\log A$  and  $\log B$ .

**Question.**  $\log(A \cdot B) =$



**Question.**  $\log(A/B) =$



**Question.**  $\log(A^p) =$

**Question.**  $\log(1) =$

**Question.** Find a way to express  $\log_2(x)$ , the base 2 logarithm using  $\log(x)$ , or the base 10 logarithm.

Determine whether the following are true:

- (1)  $\log(10^2 \cdot 10^3) = \log 10^2 + \log 10^3$
- (2)  $\log(10^5 \cdot 10^{-7}) = \log 10^5 + \log 10^{-7}$
- (3)  $\log(10^2/10^3) = \log 10^2 - \log 10^3$
- (4)  $\log(10^3/10^{-3}) = \log 10^3 / \log 10^{-3}$