MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 3 - DECEMBER 2016
ROUND 4 ALG 2: LOG & EXPONENTIAL FUNCTIONS

ANSWERS

A) _____

B) _____

C) _____

A) Compute the value(s) of x that satisfy the equation $\log_2 x + \log_2 \frac{1}{4} = \frac{3}{2}\log_2 25$.

B) If $\log_3\left(\log_2\left(\log_2 x\right)\right) = 1$, compute $\left(\log_4 x\right)^{\frac{1}{2}} \cdot \log_2 x$.

C) Determine the <u>domain</u> of the real-valued function defined by $y = \log_{10}\left(\frac{x^3+1}{x^3-x}\right)$.