MASSACHUSETTS MATHEMATICS LEAGUE
CONTEST 5 - FEBRUARY 2017
ROUND 1 ALGEBRA 2: ALGEBRAIC FUNCTIONS

ANSWERS

A) _____

B) _____

C) _____

A) Given: $f(x)=\frac{8-2x}{3}$ and $g(x)=f(2x)+1$

The graph of $y=g(x)$ intersects the *x*-axis at $(h,0)$. Compute *h*.

B) Given: $f(x)=\frac{k}{x+2}$

Compute the nonzero value(s) of *k* for which $f(2)=f^{-1}(4)\cdot f(4)$.

C) A line with slope 9 intersects a line tangent to $y=f(x)=x^3-6x^2-4x+24$ at $(2,0)$.

Compute the coordinates of the two other points where this line intersects $y=f(x)$.