MASSACHUSETTS MATHEMATICS LEAGUE
MARCH 2006
ROUND 3 ALGEBRA 2: POLYNOMIAL FUNCTIONS
ANSWERS

A) _____

B) _____

C) _____

A) Determine k so that -1 is a root of $(k-3)x^3 + (2k-5)x^2 + (k-7)x + (k-10) = 0$.

B) The polynomial function $f(x)$ has exactly three distinct zeros at $x = 1$, $x = -4/3$ and $x = 3/2$. If $f(0) = -12$, find $f(-1)$.

C) The polynomial $P(x)$ has integer coefficients and leaves a remainder of -3 when divided by $(x-2)$. The remainder is 17 when $P(x)$ is divided by $(x+3)$.
What is the remainder when $P(x)$ is divided by $(x-2)(x+3)$?

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