

AMC

Polynomials and their Zeros 2003 AMC12B #19

Let $P(x)$ be a linear polynomial with $P(6) - P(2) = 12$. What is $P(12) - P(2)$?

Solution

A very straight follow question in dealing with linear polynomials, the easiest of them all to handle.

The graph of $y = P(x)$ is a line, and the slope of the line is constant. So

$$\frac{P(12) - P(2)}{12 - 2} = \frac{P(6) - P(2)}{6 - 2} = \frac{12}{4} = 3$$

and

$$P(12) - P(2) = 10 \cdot 3 = 30$$

Let's move on to more difficult questions shall we.