Problem of the Week
Problem E
Mystery Function

For some function $f(x) = ax^3 + bx^2 + cx + d$, where a, b, c, and d are integers, we know the following information:

- the y-intercept is 5,

- $f(2) = -3$,

- $f(4)$ is greater than 40 but less than 50, and

- $f(6)$ is greater than 240 but less than 250.

Determine the value of $f(7)$.