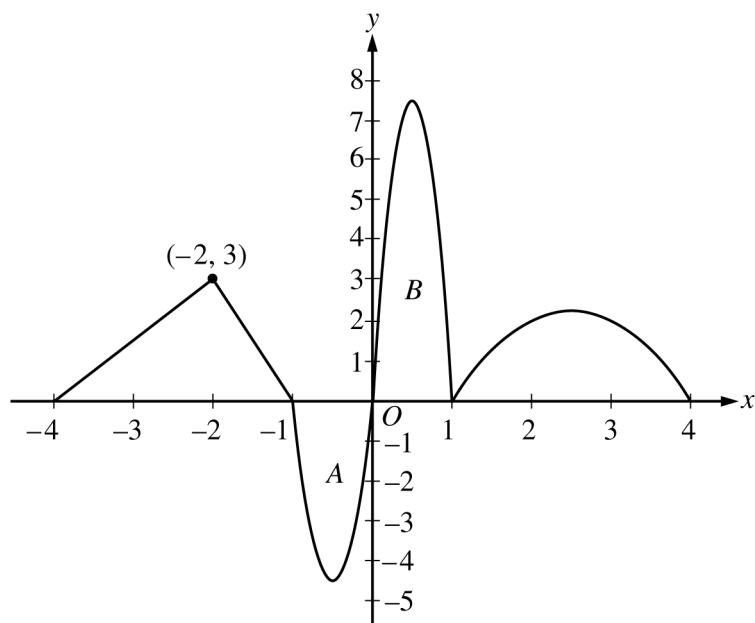


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(c) For $t < 10$, an alternate model for the internal temperature of the potato at time t minutes is the function

G that satisfies the differential equation $\frac{dG}{dt} = -(G - 27)^{2/3}$, where $G(t)$ is measured in degrees Celsius and $G(0) = 91$. Find an expression for $G(t)$. Based on this model, what is the internal temperature of the potato at time $t = 3$?

From AP Classroom



Graph of f

4. The continuous function f is defined for $-4 \leq x \leq 4$. The graph of f , shown above, consists of two line segments and portions of three parabolas. The graph has horizontal tangents at $x = -\frac{1}{2}$, $x = \frac{1}{2}$, and $x = \frac{5}{2}$. It is known that $f(x) = -x^2 + 5x - 4$ for $1 \leq x \leq 4$. The areas of regions A and B bounded by the graph of f and the x -axis are 3 and 5, respectively. Let g be the function defined by $g(x) = \int_{-4}^x f(t) dt$.
- (a) Find $g(0)$ and $g(4)$.
- (b) Find the absolute minimum value of g on the closed interval $[-4, 4]$. Justify your answer.
- (c) Find all intervals on which the graph of g is concave down. Give a reason for your answer.