1. (2 pts each) Find the most general antiderivative for each $f$.

(a) $f(x) = x^{4/9} + 2x^{-1/3} - 7x^9$.

(b) $f(x) = 5x^{3/4} - \frac{5}{x^4} - 6\sqrt[3]{x}$

(c) $f(x) = 3\sin x - \sec^2 x + 5\csc x \cot x$

(d) $f(x) = \frac{7x^4 - 3x^3 + 8x^2 - 9}{5x^2}$
2. (1 pt each) The graph of \( f \) is given below. Evaluate each integral by interpreting it in terms of areas.

\[
\begin{align*}
(a) \int_{0}^{3} f(x) \, dx &= \\
(b) \int_{3}^{7} f(x) \, dx &= \\
(c) \int_{7}^{13} f(x) \, dx &= \\
(d) \int_{0}^{13} f(x) \, dx &= \\
(e) \int_{9}^{12} f(x) \, dx &=
\end{align*}
\]
3. (3 pts) Find \( f \) if \( f''(x) = 12x^2 + 6x - 4 \), \( f(0) = 5 \) and \( f(1) = 6 \).

4. (3 pts) A particle is moving with the given data. Find the position of the particle.

\[ a(t) = 10 + 3t - 3t^3, \quad s(0) = 0, \quad s(2) = 10. \]