

AP Calculus AB '20-21
Anti-Derivative FRQ Test v3

Name _____

Score _____

1. $\int \left(3x^6 + 5^x - \frac{1}{\sqrt[3]{x^8}} + \frac{1}{11x^2} \right) dx$



2. $\int \frac{3x^5}{(4+x^6)^{11}} dx$

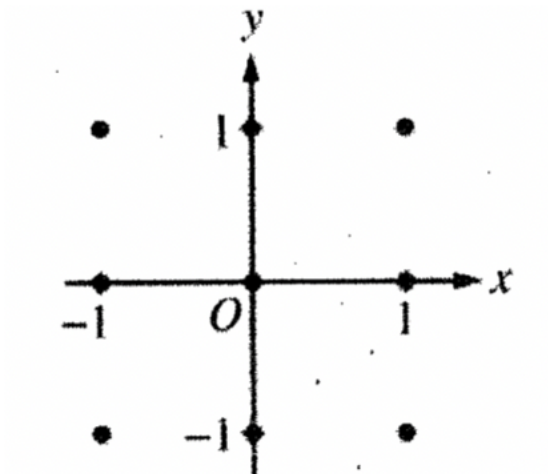


3. A particle's acceleration is given by $a(t) = 6t - 4$ meters per second squared. At time $t = 1$, the particle's velocity is 3 meters per second and its position is 2 meters. Find the particle's position equation.

4.
$$\int \left(5\sqrt{x^3} - \sec(3x) + \frac{4x}{e^{4x^2}} \right) dx$$

5. Given the differential equation, $\frac{dy}{dx} = xy + y$

a. On the axis system provided, sketch the slope field for the $\frac{dy}{dx}$ at all points plotted on the graph.



b. Find the particular solution to $\frac{dy}{dx} = xy + y$ with the initial condition $y(0) = -4$.