

Feng Chia University PDI-Program-Homework Six

A) Computation (Show all the detail work)

<p>1. Evaluate the antiderivative of $f(x) = 3\cos x + 7\sin x$.</p>	<p>2. Evaluate $\int \frac{2x^3 - 4x + 5}{x^2} dx$</p>
<p>3. Evaluate $\int x e^{x^2} dx$.</p>	<p>4. Evaluate $\int x \sin(3x^2 - 1) dx$.</p>
<p>5. Evaluate $\int \frac{1}{x \ln x} dx$.</p>	<p>6. Find the solution to the initial value problem (IVP) $f'(x) = x^2 + \sqrt{x}$, $f(1) = 3$.</p>

<p>7. Evaluate $\int \frac{e^{2x}}{1+e^{2x}} dx$</p>	<p>8. Evaluate $\int \cos x \sqrt{\sin x + 1} dx$</p>
<p>9. Evaluate $\int x^2 \sqrt{1-x} dx$</p>	<p>10. Evaluate the definite integral</p> $\int_{-4}^4 x^3 - \sqrt{16-x^2} dx$
<p>11. Find the area under the graph of $f(x) = x + 3$ on $[0, 2]$</p>	<p>12. Evaluate the definite integral</p> $\int_0^1 3x^2 + e^x dx$