1. Evaluate $\displaystyle\int_1^e x(\ln x)^2 dx$.

2. Find the domain and evaluate $\displaystyle\int \frac{1}{2 + \sqrt[3]{x}} dx$.

3. Evaluate $\displaystyle\int \frac{x}{\sqrt{7 + 6x - x^2}}\ dx$.

4. Find without Table $\displaystyle\int_0^{\frac{1}{2}} \arctan 2x\ dx$.

5. Evaluate $\displaystyle\int_0^{\frac{1}{2}} \frac{2x + 1}{4x^2 + 1}\ dx$.

6. Find without Table $\displaystyle\int e^{3x} \sin \frac{x}{3}\ dx$.

7. In the domain find the general antiderivative of $\dfrac{\sqrt{x}}{2 + \sqrt{x}}$.

8. Find $\displaystyle\int \frac{1}{2 + \sqrt{x+1}} dx$ in the domain of definition.

9. Evaluate $\displaystyle\int_{-1}^0 x^2 e^{-3x} dx$.

10. Evaluate $\displaystyle\int_0^2 x\sqrt{4x - x^2}\ dx$.

11. For $x > 0$ find without Table $\displaystyle\int (3x + 2)\ln x\ dx$.