

**Zadatak 7.** Nađi primitivnu funkciju svake od sljedećih funkcija:

$$1) f(x) = \sqrt{x} - \sqrt[3]{x^2}; \quad 2) f(x) = 1 + \sqrt{x} + \sqrt[4]{x};$$

$$3) f(x) = \sqrt{2x-3}; \quad 4) f(x) = \frac{1}{(2x+1)^2};$$

$$5) f(x) = \frac{2x}{(x^2-1)^2}; \quad 6) f(x) = \frac{2x}{\sqrt{2x^2-1}}.$$

**Rješenje.**

$$1) f(x) = \sqrt{x} - \sqrt[3]{x^2}, F(x) = \int (\sqrt{x} - \sqrt[3]{x^2}) dx = \int (x^{\frac{1}{2}} - x^{\frac{2}{3}}) dx = \frac{2}{3}x\sqrt{x} - \frac{3}{5}x\sqrt[3]{x^2} + C;$$

$$2) f(x) = 1 + \sqrt{x} + \sqrt[4]{x}, F(x) = \int (1 + x^{\frac{1}{2}} + x^{\frac{1}{4}}) dx = x + \frac{2}{3}x\sqrt{x} + \frac{4}{5}x\sqrt[4]{x} + C;$$

$$3) f(x) = \sqrt{2x-3}, F(x) = \int \sqrt{2x-3} dx = \left\{ \begin{array}{l} 2x-3 = t^2 \\ 2dx = 2tdt \\ dx = tdt \end{array} \right\} = \int t^2 dt = \frac{t^3}{3} + C = \frac{\sqrt{(2x-3)^3}}{3} + C;$$

$$4) f(x) = \frac{1}{(2x+1)^2}; F(x) = \int \frac{dx}{(2x+1)^2} = \frac{1}{2} \int \frac{d(2x+1)}{(2x+1)^2} = -\frac{1}{4x+2} + C;$$

$$5) f(x) = \frac{2x}{(x^2-1)^2}, F(x) = \int \frac{2xdx}{(x^2-1)^2} = \int \frac{d(x^2-1)}{(x^2-1)^2} = -\frac{1}{x^2-1} + C = \frac{1}{x^2-1} + C = \frac{1}{1-x^2} + C;$$

$$6) f(x) = \frac{2x}{\sqrt{2x^2-1}}, F(x) = \int \frac{2xdx}{\sqrt{2x^2-1}} = \int \frac{d(2x^2-1)}{2\sqrt{2x^2-1}} = \sqrt{2x^2-1} + C.$$