

Za vežbu

1. $\int \frac{dx}{\sqrt{-3x^2 + 2x + 1}};$

Rešenje: $\frac{\sqrt{3}}{3} \arcsin \frac{3x-1}{2} + c.$

2. $\int \frac{dx}{\sqrt{4x^2 - 12x + 3}};$

Rešenje: $\frac{1}{2} \ln \left| x - \frac{3}{2} + \sqrt{x^2 - 3x + \frac{3}{4}} \right| + c.$

3. $\int \frac{dx}{\sqrt{1-x-3x^2}};$

Rešenje: $\frac{\sqrt{3}}{3} \arcsin \frac{6x+1}{\sqrt{13}} + c.$

4. $\int \frac{dx}{\sqrt{2x^2 - 3x + 1}};$

Rešenje: $\frac{\sqrt{2}}{2} \ln \left| x - \frac{3}{4} + \sqrt{x^2 - \frac{3}{2}x + \frac{1}{2}} \right| + c.$

5. $\int \frac{x+3}{\sqrt{x^2+2x+2}} dx;$

Rešenje: $\sqrt{x^2+2x+2} + 2 \ln |x+1 + \sqrt{x^2+2x+2}| + c.$

6. $\int \frac{3x-2}{\sqrt{5+4x-x^2}} dx;$

Rešenje: $4 \arcsin \frac{x-2}{3} - 3\sqrt{5+4x-x^2} + c.$

7. $\int \frac{dx}{1+\sqrt{x}};$

Rešenje: $2\sqrt{x} - 2 \ln |1 + \sqrt{x}| + c.$

8. $\int \frac{x dx}{\sqrt[3]{x} + \sqrt{x}};$

Rešenje: $\frac{2}{3}\sqrt{x^3} - \frac{3}{4}\sqrt[3]{x^4} + \frac{6}{7}\sqrt[6]{x^7} - x + \frac{6}{5}\sqrt{x^5} - \frac{3}{2}\sqrt[3]{x^2} + 2\sqrt{x} - 3\sqrt[3]{x} + 6\sqrt[6]{x} - 6 \ln(\sqrt[6]{x} + 1) + c.$

9. $\int \frac{dx}{\sqrt[3]{(2x+1)^2} - \sqrt{2x+1}};$

Rešenje: $\frac{3}{2}\sqrt[3]{2x+1} + 3\sqrt[6]{2x+1} + 3 \ln |\sqrt[6]{2x+1} - 1| + c.$

10. $\int \frac{x + \sqrt[3]{x^2} + \sqrt[6]{x}}{x(1 + \sqrt[3]{x})} dx;$

Rešenje: $\frac{3}{2}\sqrt[3]{x^2} + \arctg \sqrt[6]{x} + c.$

11. $\int \frac{1 - \sqrt{x+1}}{\sqrt[3]{x+1} + 1} dx;$

Rešenje: $-\frac{6}{7}(\sqrt{x+1})^7 + \frac{6}{5}(\sqrt{x+1})^5 + \frac{3}{2}(\sqrt{x+1})^4 - 2(\sqrt{x+1})^3 - 3(\sqrt{x+1})^2 + 6(\sqrt{x+1}) + 3 \ln |\sqrt[3]{x+1} + 1| - 6 \arctg \sqrt[6]{x+1} + c$

12. $\int \frac{3x^3 + 5}{\sqrt{x^2 + 4}} dx;$

Rešenje: $(x^2 - 8)\sqrt{x^2 + 4} + \frac{5}{2} \arctg \frac{x}{2} + c.$

13. $\int \frac{x^3 - 1}{\sqrt{x^2 + 1}} dx;$

Rešenje: $(\frac{1}{3}x^2 - \frac{2}{3})\sqrt{x^2 + 1} - \ln |x + \sqrt{x^2 + 1}| + c.$

$$14. \int \frac{x^2}{\sqrt{1-x-3x^2}} dx$$

$$\text{Rešenje: } \left(\frac{1}{6}x^2 - \frac{1}{12}\right) \sqrt{1-x-3x^2} + \frac{\sqrt{3}}{24} \arcsin \frac{6x+1}{\sqrt{13}} + c.$$

$$15. \int \frac{x^2+1}{\sqrt{x^2+x+1}} dx$$

$$\text{Rešenje: } \left(\frac{1}{2}x^2 - \frac{3}{4}\right) \sqrt{x^2+x+1} + \frac{7}{8} \ln \left|x + \frac{1}{2} + \sqrt{x^2+x+1}\right| + c.$$

$$16. \int \frac{x+2}{\sqrt{4x^2-12x+3}} dx$$

$$\text{Rešenje: } \frac{1}{4} \sqrt{4x^2-12x+3} + \frac{7}{4} \ln \left|x - \frac{3}{2} + \sqrt{x^2-3x+\frac{3}{4}}\right| + c.$$

$$17. \int \frac{2x+5}{\sqrt{1-x-3x^2}} dx;$$

$$\text{Rešenje: } -\frac{2}{3} \sqrt{1-x-3x^2} + \frac{14\sqrt{3}}{9} \arcsin \frac{6x+1}{\sqrt{13}} + c.$$

$$18. \int \frac{x+1}{\sqrt{2x^2-3x+1}} dx;$$

$$\text{Rešenje: } \frac{1}{2} \sqrt{2x^2-3x+1} + \frac{7\sqrt{2}}{8} \ln \left|x - \frac{3}{4} + \sqrt{x^2 - \frac{3}{2}x + \frac{1}{2}}\right| + c.$$