

Zadaci za vežbu (izvodi)

1. Izračunati:

a) $(x^2 - 3x + 2)' =$

b) $(x - \sin x + \frac{1}{x})' =$

c) $(2x^5 - \frac{1}{4}x^4 - \frac{2}{x} + \frac{3}{x^3})' =$

d) $(\sqrt{x} + \sqrt[3]{x} - 2\sqrt[3]{x^2})' =$

e) $(\frac{1}{\sqrt{x}} - \frac{1}{\sqrt[3]{x}})' =$

f) $(\sin x - \cos x)' =$

g) $(2\operatorname{tg}x - \ln x)' =$

h) $(2x^3 - 3\operatorname{ctg}x)' =$

i) $(2\ln x - \frac{1}{x})' =$

j) $(3e^x + 2\sqrt{x})' =$

2. Izračunati:

a) $(x^2 e^x)' =$

b) $(\ln x \sin x)' =$

c) $((\sqrt{x} - 1)\sin x)' =$

d) $(\ln^2 x)' =$

e) $(2\operatorname{tg}x(\sin x - \operatorname{ctg}x))' =$

f) $(x \sin x \ln x)' =$

g) $(\frac{x^3}{3} + x) \operatorname{arctg}x)' =$

h) $(\operatorname{arcsin}x \operatorname{arccos}x)' =$

i) $(\sqrt{x} \operatorname{arcsin}x)' =$

3. Izračunati:

a) $(\frac{x}{\sin x})' =$

b) $(\frac{\sin x}{\cos x})' =$

c) $(\frac{1}{\sqrt{x} + 1})' =$

d) $(\frac{e^x}{x + x^2})' =$

e) $(\frac{2 - \operatorname{arctg}x}{1 + \operatorname{arctg}x})' =$

f) $(\frac{x}{\ln x})' =$

g) $(\frac{x \ln x}{\sin x})' =$

h) $(\frac{1}{\ln x} - \frac{1}{e^x})' =$

i) $(\frac{\operatorname{arcsin}x}{x} - \frac{\sin x}{\sqrt{x}})' =$

4. Naći izvode sledećih funkcija:

a) $f(x) = (x + 2)^2$

b) $f(x) = \sin(2x - 1)$

c) $f(x) = e^{\sqrt{x}}$

d) $f(x) = \sin^5 x$

e) $f(x) = \sin x^5$

f) $f(x) = \ln(x + 1)$

g) $f(x) = \cos(2x)$

h) $f(x) = \sqrt[3]{x^2 - 3}$

i) $f(x) = \operatorname{arctg}x^2$

j) $f(x) = e^{3x-1}$

k) $f(x) = \operatorname{tg}(\sin x)$

l) $f(x) = \sqrt{\cos x}$

m) $f(x) = \ln(\ln x)$

n) $f(x) = e^{\cos x}$

nj) $f(x) = \sqrt{x^2 - 3x + 2}$

5. Naći izvode sledećih funkcija:

a) $f(x) = (x^4 + 3x^2 + 3)^5$

b) $f(t) = (t^2 + 1)^2$

c) $f(s) = \sqrt[3]{5s^2 - s - 3}$

d) $f(x) = (3x - 1)^6 \sqrt{2x - 5}$

e) $f(x) = \sqrt{\frac{x}{x+1}}$

f) $f(x) = \frac{2x + 3}{\sqrt{4x^2 + 9}}$

g) $f(x) = \sin 2x + \cos 5x$

h) $f(x) = 3\sin^5 x + \operatorname{tg}\sqrt{x}$

i) $f(x) = (\sin x + \cos x)^2$

j) $f(x) = \sqrt{\operatorname{arctg}x} + \operatorname{tg}x$

k) $f(x) = \operatorname{arctg}(\frac{1+x}{1-x})$

l) $f(x) = \operatorname{arcsin}\sqrt{x} - e^{\sin x + \cos x}$

lj) $f(x) = \ln(\frac{1+x}{1-x})$

m) $f(x) = e^{x^2+3x+1}$

n) $f(x) = \ln\sqrt{x^2 + 2} + \sqrt{\ln(x^2 + 2)}$

6. Naći izvode sledećih funkcija:

$$a) f(x) = \frac{2x^2 - 3x + 1}{x^2 + 1}$$

$$f) f(x) = 5\operatorname{arctg}(2x + 7)e^{3x+1}$$

$$b) f(x) = \frac{\sin x + e^x \operatorname{tg} x}{\ln x + 1}$$

$$g) f(x) = 2\sqrt{\cos x} + \ln(x^2 + 1)$$

$$c) f(x) = \frac{\sin x - \cos x}{\sin x + \cos x}$$

$$h) f(x) = \frac{\sin x + \operatorname{tg} x}{x^3 + e^x + 3x}$$

$$d) f(x) = \frac{\sin^2 x + 2x \cos x}{e^x + 1}$$

$$i) f(x) = \sin(\sqrt{3}x) - \sqrt{3}\sin x$$