



Zadatak 3. Koje su od sljedećih funkcija parne, a koje neparne:

- | | |
|-------------------------------|------------------------------|
| 1) $f(x) = x + x^2$; | 2) $f(x) = x^4 + 3x^2 - 2$; |
| 3) $f(x) = x x $; | 4) $f(x) = \sqrt{1 - x^2}$; |
| 5) $f(x) = \sin x - x^3$; | 6) $f(x) = x \cos x$; |
| 7) $f(x) = \sin^2 x - x^2$; | 8) $f(x) = \cos^2 x - x^2$; |
| 9) $f(x) = \sin x - \cos x$? | |

Rješenje.

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

$$f(-x) = -x + (-x)^2 = -x + x^2 \implies \text{ni parna, ni neparna;}$$

2) $f(x) = x^4 + 3x^2 - 2$

$$f(-x) = (-x)^4 + 3(-x)^2 - 2 = x^4 + 3x^2 - 2 = f(x) \implies \text{parna;}$$

3) $f(x) = x|x|$

$$f(-x) = -x|-x| = -x|x| = -f(x) \implies \text{neparna;}$$

4) $f(x) = \sqrt{1 - x^2}$

$$f(-x) = \sqrt{1 - (-x)^2} = \sqrt{1 - x^2} = f(x) \implies \text{parna;}$$

5) $f(x) = \sin x - x^3$

$$f(-x) = \sin(-x) - (-x)^3 = -\sin x + x^3 = -(\sin x - x^3) = -f(x) \implies \text{neparna;}$$

6) $f(x) = x \cos x$

$$f(-x) = -x \cos(-x) = -x \cos x = -f(x) \implies \text{neparna;}$$

7) $f(x) = \sin^2 x - x^2$

$$f(-x) = \sin^2(-x) - (-x)^2 = \sin^2 x - x^2 = f(x) \implies \text{parna;}$$

8) $f(x) = \cos^2 x - x^2$

$$f(-x) = \cos^2(-x) - (-x)^2 = \cos^2 x - x^2 = f(x) \implies \text{parna;}$$

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

$$f(-x) = \sin(-x) - \cos(-x) = -\sin x - \cos x \implies \text{ni parna ni neparna.}$$