Zadatak 2. Ako je $f(x) = 3x^2 + 2$, izračunaj

1) $f(2)$;
2) $f(-2)$;
3) $f(2+\sqrt{3})$;
4) $f(x+1)$;
5) $f(x-1)+f(x+1)$;
6) $f(f(x))$.

Rješenje. $f(x) = 3x^2 + 2$,

1) $f(2) = 3 \cdot 2^2 + 2 = 14$;
2) $f(-2) = 3 \cdot (-2)^2 + 2 = 14$;
3) $f(2+\sqrt{3}) = 3 \cdot (2+\sqrt{3})^2 + 2 = 3(7+4\sqrt{3}) + 2 = 23 + 12\sqrt{3}$;
4) $f(x+1) = 3(x+1)^2 + 2 = 3x^2 + 6x + 5$;
5) $f(x-1)+f(x+1) = 3(x-1)^2 + 2 + 3(x+1)^2 + 2 = 3x^2 - 6x + 5 + 3x^2 + 6x + 5 = 6x^2 + 10$;
6) $f(f(x)) = 3(3x^2+2)^2 + 2 = 3(9x^4 + 12x^2 + 4) + 2 = 27x^4 + 36x^2 + 14$.