

Linearity of integration

$$\int (\alpha f(x) + \beta h(x)) \, dx = \alpha \int f(x) \, dx + \beta \int h(x) \, dx$$

№1. Find the general form of antiderivatives of the following functions:

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|--------------------------------|---------------------------------|
| 1. $f(x) = 4 - 2x;$ | 4. $f(x) = x^3(2 - x^2);$ |
| 2. $f(x) = 3x^2 - x + 5;$ | 5. $f(x) = 5e^x - 2 \cdot 3^x;$ |
| 3. $f(x) = 5 \sin x + \cos x;$ | 6. $f(x) = \frac{6}{x} - x^3.$ |

№2. For the following functions $f(x)$ find an antiderivative $F(x)$ which satisfies the specified condition:

- $f(x) = 6x^2 + 4x - 3, \quad F(-2) = -3;$
- $f(x) = 15x^{14} - \frac{5}{4\sqrt{x}}, \quad F(1) = 0;$
- $f(x) = 3 - \frac{1}{x^2}, \quad F(0.5) = 7.$