

### Integral Aufgabe 3

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

Nullstellen:

$$\frac{1}{2}x^2 - \frac{1}{2}x - 3 = 0 \quad | \cdot 2$$

$$x^2 - x - 6 = 0$$

Linearfaktoren:

$$(x - 3)(x + 2) = 0$$

$$x - 3 = 0 \quad | +3$$

$$x_1 = 3$$

$$x + 2 = 0 \quad | -2$$

$$x_2 = -2$$

$$A = \int_0^6 f(x) dx = \int_0^6 \left( \frac{1}{2}x^2 - \frac{1}{2}x - 3x \right) dx$$

$$A = \left| \frac{x^3}{6} - \frac{x^2}{4} - 3x \right|_0^6 = \left| -6,75 - (3,67) \right|$$

$$\mathbf{A = 10,42}$$

