

Integral Aufgabe 7

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

Nullstellen:

$$-\frac{1}{5}x(x^2 - 10x + 25) = 0$$

$$-\frac{1}{5}x = 0 \quad | \quad : -\frac{1}{5}$$

$$x_1 = 0$$

$$x^2 - 10x + 25 = 0$$

$$(x - 5)^2 = 0$$

$$x_{2,3} = 5 \quad \text{Berührungspunkt}$$

$$A = \int_0^5 f(x) dx = \int_0^5 \left(-\frac{1}{5}x^3 + 2x^2 - 5x\right) dx$$

$$A = \left| -\frac{x^4}{20} + \frac{2x^3}{3} - \frac{5x^2}{2} \right|_0^5 = |-10,42|$$

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

