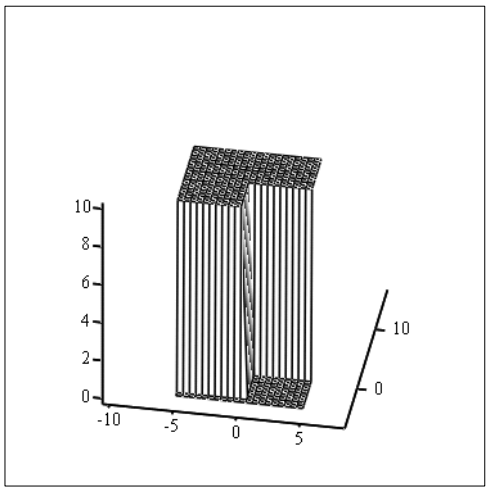
## Belastung von beliebiger Form

Es wird die Spannungsverteilung unter dem Punkt P ( x = 0 und y = 0 ) gerechnet

$x := -10, -9.9 .. 10$ $y := -10, -9.9 .. 20$

$q := 10$

$$q(x,y) := \begin{cases} q & \text{if } -8 \le x \le 0 \wedge -4 \le y \le 16 \\ q & \text{if } 0 \le x \le 6 \wedge 0 \le y \le 16 \\ 0 & \text{otherwise} \end{cases}$$

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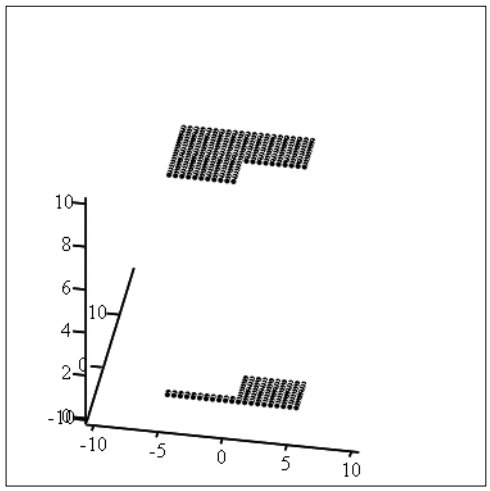


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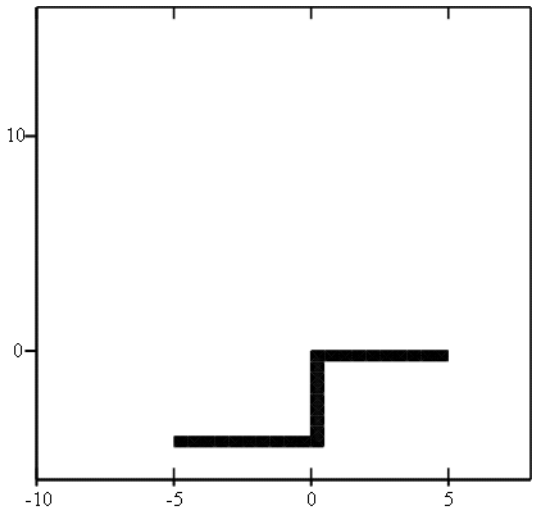
$x_1 := 0$ $x_2 := 10$

$y_1 := 0$ $y_2 := 5$

$$\sigma_z(z) := \frac{3}{2\cdot\pi}\cdot z^3 \cdot \int_{x_1}^{x_2}\int_{y_1}^{y_2} \frac{q(x,y)}{\left(x^2 + y^2 + z^2\right)^{\frac{5}{2}}}\, dy\, dx$$

$\sigma_z(10) = 0.942$

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