

quadratische Ergänzung:

$$f(x) = \frac{3 \cdot x^2}{a} - 12x + 8 \quad \text{allg. Form} \quad (a-b)^2 = a^2 - 2ab + b^2$$

$$f(x) = 3 \cdot \left[x^2 - 4x + \frac{8}{3} \right]$$

$$f(x) = 3 \cdot \left[x^2 - 4x + (2^2) - (2^2) + \frac{8}{3} \right]$$

$$f(x) = 3 \cdot \left[(x-2)^2 - 4 + \frac{8}{3} \right]$$

$$f(x) = 3 \cdot \left[\underline{(x-2)^2} - \underline{\frac{4}{3}} \right]$$

$$f(x) = 3 \cdot (x-2)^2 - 4 \quad \text{SP-Form}$$

$$\downarrow \quad \text{SP}(2|-4)$$

$$f(x) = a \cdot (x-u)^2 + v$$