WolframAlpha

(|(|phi|^2*2*d/mu)^2 – (3* |psi|)^2*kappa^2|)^(1/4), sqrt(2)*ph

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Input:

$$\left\{\sqrt[4]{\left|\left(|\phi|^2 \times 2 \times \frac{d}{\mu}\right)^2 - (3\,|\psi|)^2\,\kappa^2\right|},\ \sqrt{2}\ \phi^2 = k^2\,\psi,\right.$$

$$\left.\lambda = \frac{6.626}{10^{34}},\ d = 0.9,\ \kappa^2 = \left|2\left(d - \frac{\lambda}{4}\right)\right|,\ \mu = \frac{1}{2}\left(N^2 - N\right),\ N = 4\right\}$$

Result:

$$\left\{\sqrt[4]{\left|\frac{4\,d^2\,|\phi|^4}{\mu^2} - 9\,\kappa^2\,|\psi|^2\right|},\ \sqrt{2}\ \phi^2 = k^2\,\psi,\ \lambda = 6.626 \times 10^{-34},\right.$$

$$\left.d = 0.9,\ \kappa^2 = 2\left|d - \frac{\lambda}{4}\right|,\ \mu = \frac{1}{2}\left(N^2 - N\right),\ N = 4\right\}$$

Substitution:

$$\sqrt[4]{\left|\frac{4\,d^2\,|\phi|^4}{\mu^2} - 9\,\kappa^2\,|\psi|^2\right|} \approx 2.00622\,\sqrt{|\psi|}$$
