Let x be your guess about #euros in the jar. Assuming x has normal distribution with mean μ and variance σ^2, the expected gain of your guess is approximately (neglecting discreteness of the true number) equals:

$$x\frac{1}{\sqrt{2\pi}\sigma}\exp(-\frac{1}{2\sigma^2}(x-\mu)^2 \tag{1}$$

To maximize this we first calculate the derivative:

$$\frac{d}{dx}x\frac{1}{\sqrt{2\pi}\sigma}\exp(-\frac{1}{2\sigma^2}(x-\mu)^2, \tag{2}$$

which equals

$$\frac{1}{2}\frac{\sqrt{2}}{\sqrt{\pi}\sigma^3}\exp\left(-\frac{1}{2\sigma^2}(x-\mu)^2\right)\left(-x^2+\mu x+\sigma^2\right). \tag{3}$$

Then, we set the expression equal to zero and solve for x, assuming $\sigma > 0$:

$$\frac{1}{2}\frac{\sqrt{2}}{\sqrt{\pi}\sigma^3}\exp\left(-\frac{1}{2\sigma^2}(x-\mu)^2\right)\left(-x^2+\mu x+\sigma^2\right)=0, \tag{4}$$

which yields the two roots:

$$\left\{\frac{1}{2}\mu-\frac{1}{2}\sqrt{4\sigma^2+\mu^2}, \frac{1}{2}\mu+\frac{1}{2}\sqrt{4\sigma^2+\mu^2}\right\}, \tag{5}$$

and since the answer cannot be negative, we end with the optimal answer:

$$\frac{1}{2}\mu+\frac{1}{2}\sqrt{4\sigma^2+\mu^2}. \tag{6}$$

For instance, if $\mu = 500$ and the standard deviation $\sigma = 75$, we get:

$$x = \frac{1}{2}500+\frac{1}{2}\sqrt{4\cdot 75^2+500^2} \approx 511. \tag{7}$$

Thus we notice that the optimal answer is higher than the most probable value μ.