Exercise 2

Write a program in Java that samples N points from a 1-D Gaussian distribution with mean μ_{true} and standard deviation σ_{true} (use the nextGaussian method).

Calculate the mean and standard deviation of the samples, $\mu_{sampled}$ and $\sigma_{sampled}$. Run it for the following values of N, μ_{true} and σ_{true}.

Table 1: Values of $N, \mu_{true}, \sigma_{true}$

N	μ_{true}	σ_{true}
10	0.0	1.0
10	5.0	3.0
10	20.0	5.0
1000	0.0	1.0
1000	5.0	3.0
1000	20.0	5.0
100000	0.0	1.0
100000	5.0	3.0
100000	20.0	5.0

Print the above table with additional columns for $\mu_{sampled}$, $\sigma_{sampled}$, absolute difference between $\mu_{sampled}$ and μ_{true} and percentage difference of $\sigma_{sampled}$ from σ_{true}.