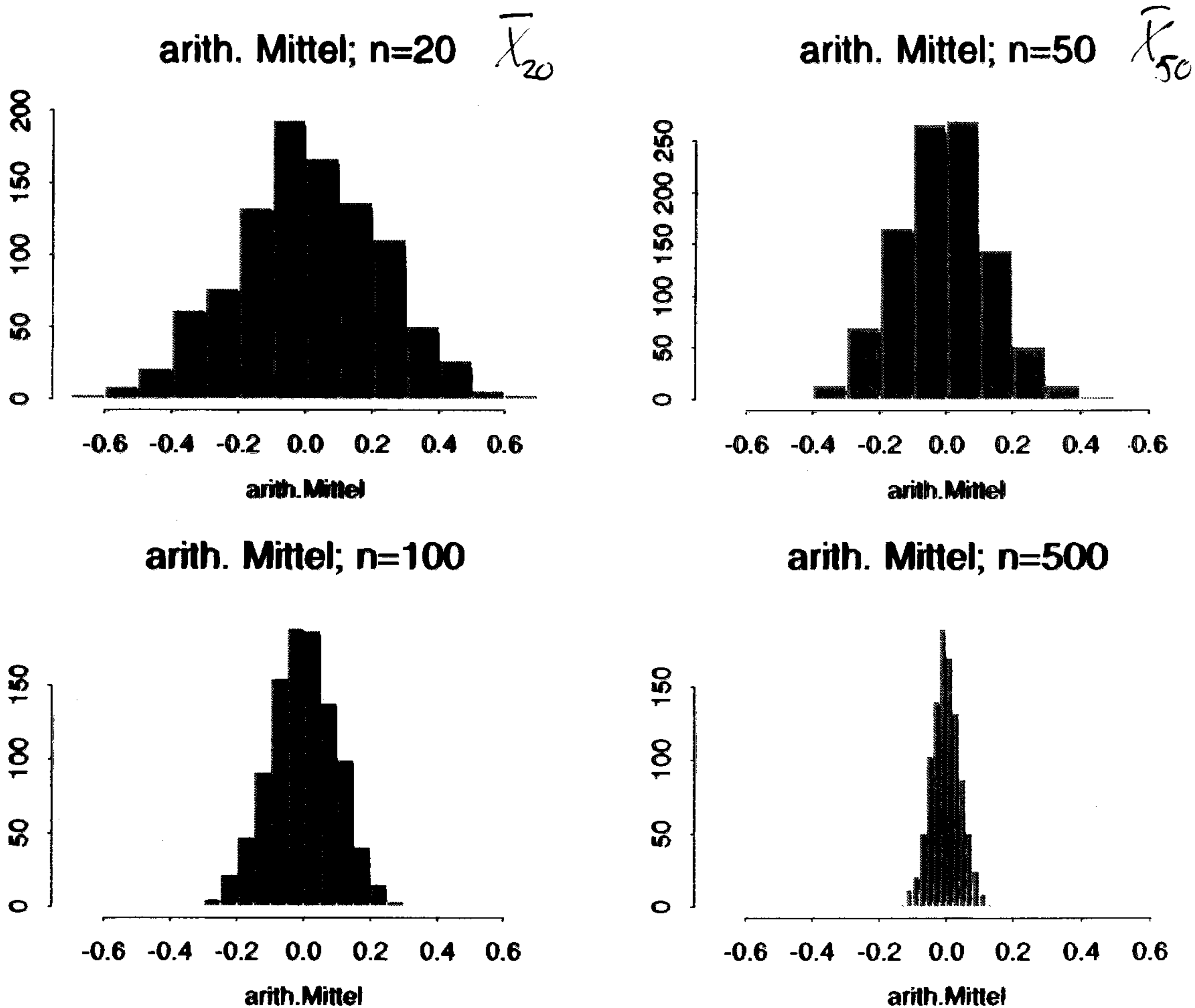
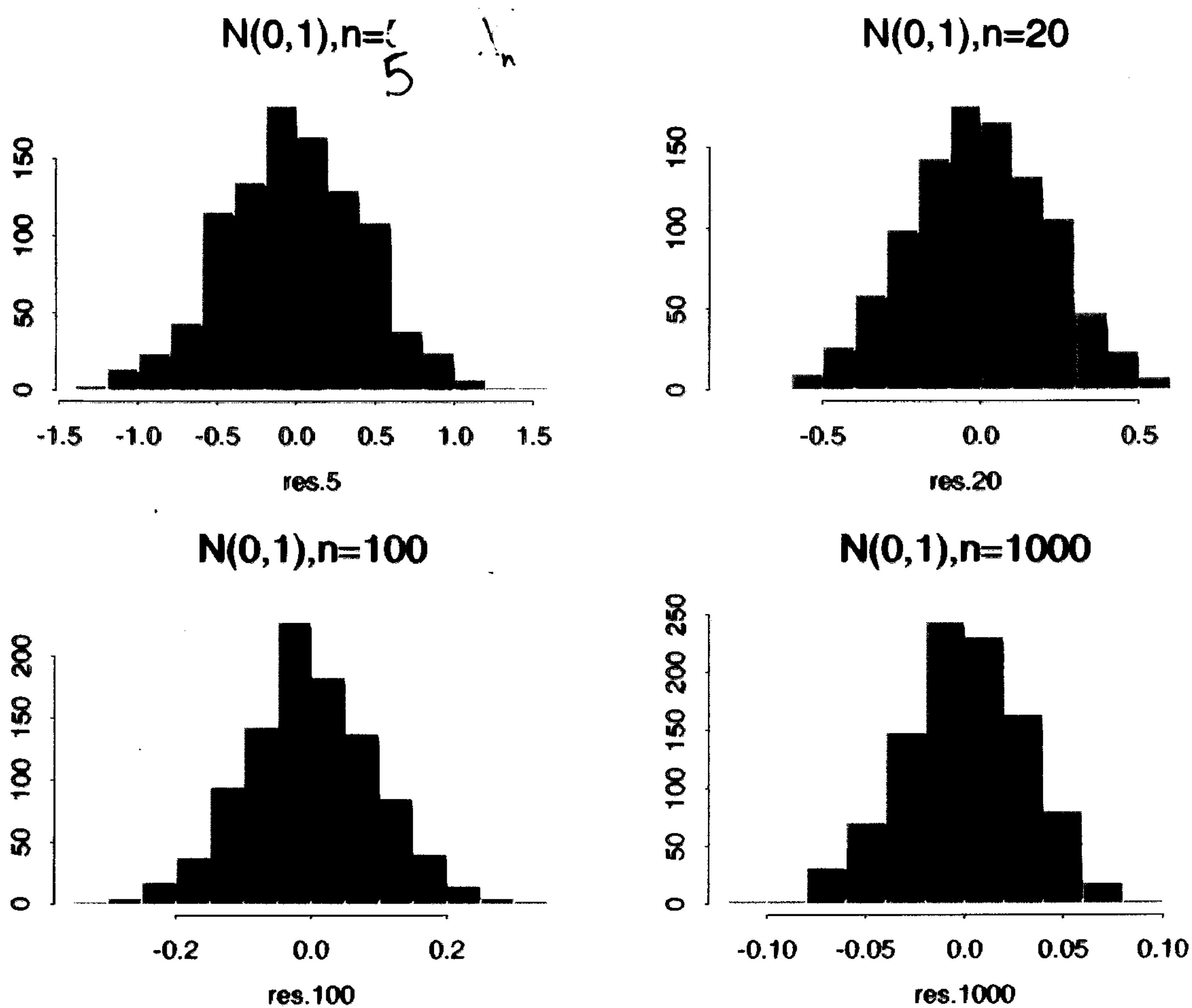
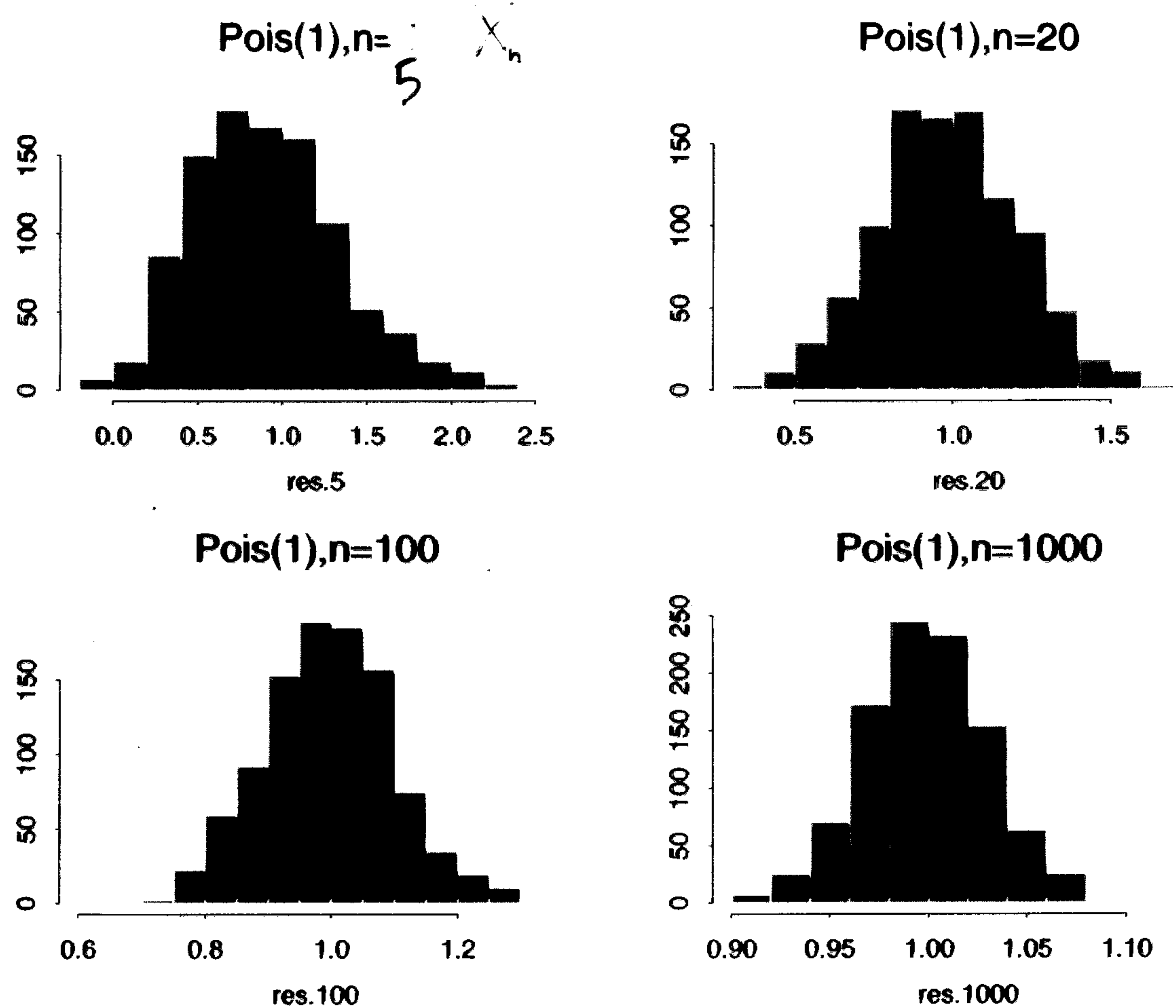
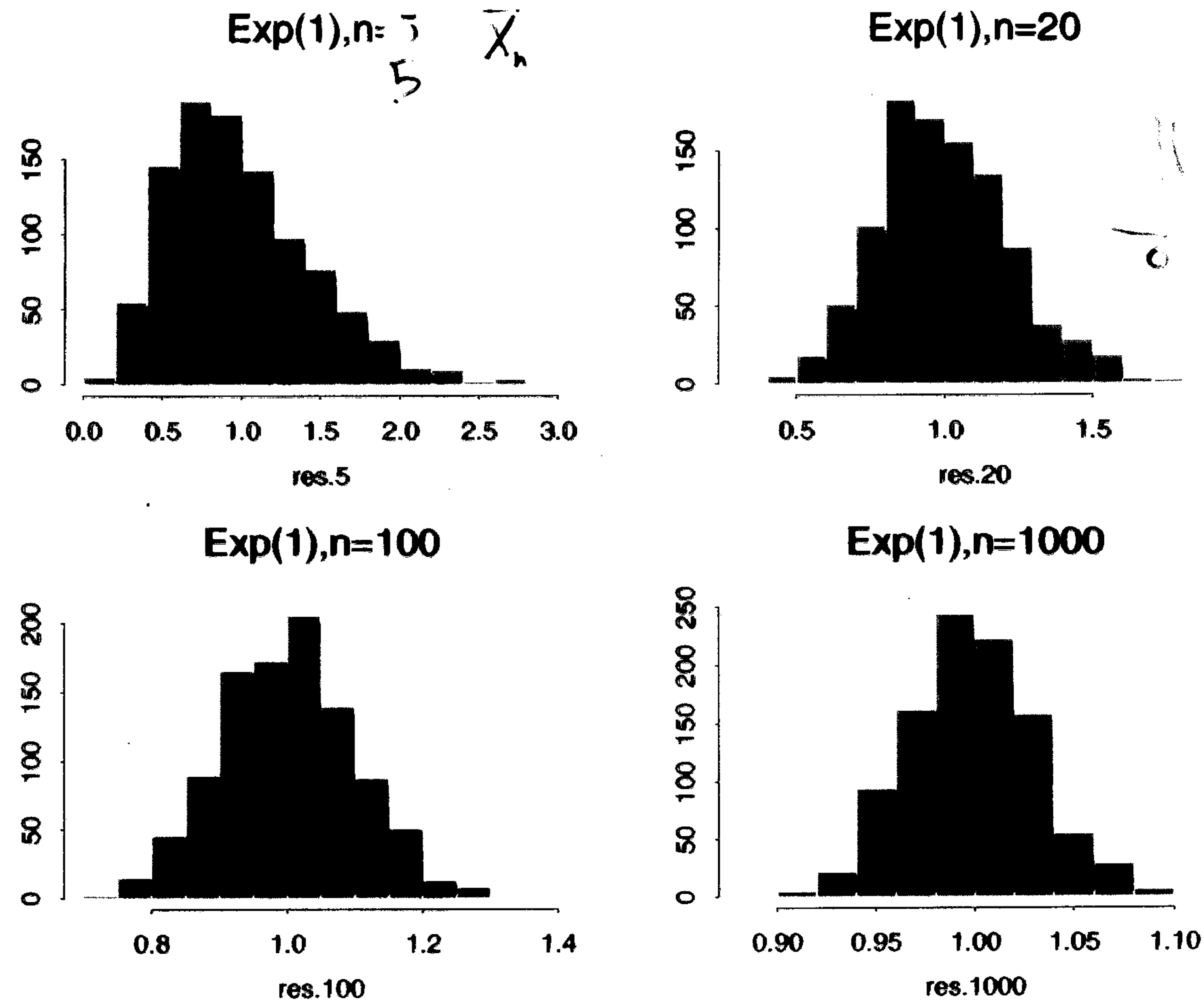


arith. Mittel; n=20
$\bar{X}_{20}$
arith.Mittel
arith. Mittel; n=50
$\bar{X}_{50}$
arith.Mittel
arith. Mittel; n=100
arith.Mittel
arith. Mittel; n=500
arith.Mittel


N(0,1),n=5
res.5
N(0,1),n=20
res.20
N(0,1),n=100
res.100
N(0,1),n=1000
res.1000



Pois(1),n=5
Xn
0
50
100
150
0.0
0.5
1.0
1.5
2.0
2.5
res.5
Pois(1),n=20
0
50
100
150
0.5
1.0
1.5
res.20
Pois(1),n=100
0
50
100
150
0.6
0.8
1.0
1.2
res.100
Pois(1),n=1000
0
50
100
150
200
250
0.90
0.95
1.00
1.05
1.10
res.1000


Exp(1),n=5
res.5
Exp(1),n=20
res.20
Exp(1),n=100
res.100
Exp(1),n=1000
res.1000

Bsp: n-maliges Münzwerfen

$$X_i = 1 \quad \text{falls K im i-ten Wurf}$$
$$ = 0 \quad \text{falls Z im i-ten Wurf}$$

$$E[X_i] = \mu \quad (= 1/2 \text{ falls Münze fair})$$

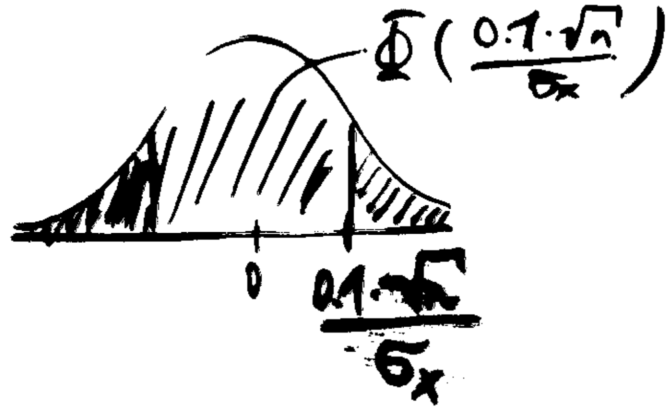
$$\bar{X}_n \longrightarrow \mu \quad (n \to \infty) \qquad (\text{GGZ})$$

mit ZGS:

$$\bar{X}_n = \mu + \frac{\sigma_x}{\sqrt{n}} Z \quad , \quad Z \overset{\text{approx.}}{\sim} \mathcal{N}(0,1)$$

$$P[\,|\bar{X}_n - \mu| > 0.1] = P\left[\left|\frac{\sigma_x}{\sqrt{n}} Z\right| > 0.1\right]$$

$$= P\left[\,|Z| > \frac{0.1 \cdot \sqrt{n}}{\sigma_x}\right] \approx 2\left(1 - \Phi\left(\frac{0.1 \cdot \sqrt{n}}{\sigma_x}\right)\right)$$



P[|empir. Frequenz - p| > 0.1] >= Kurve