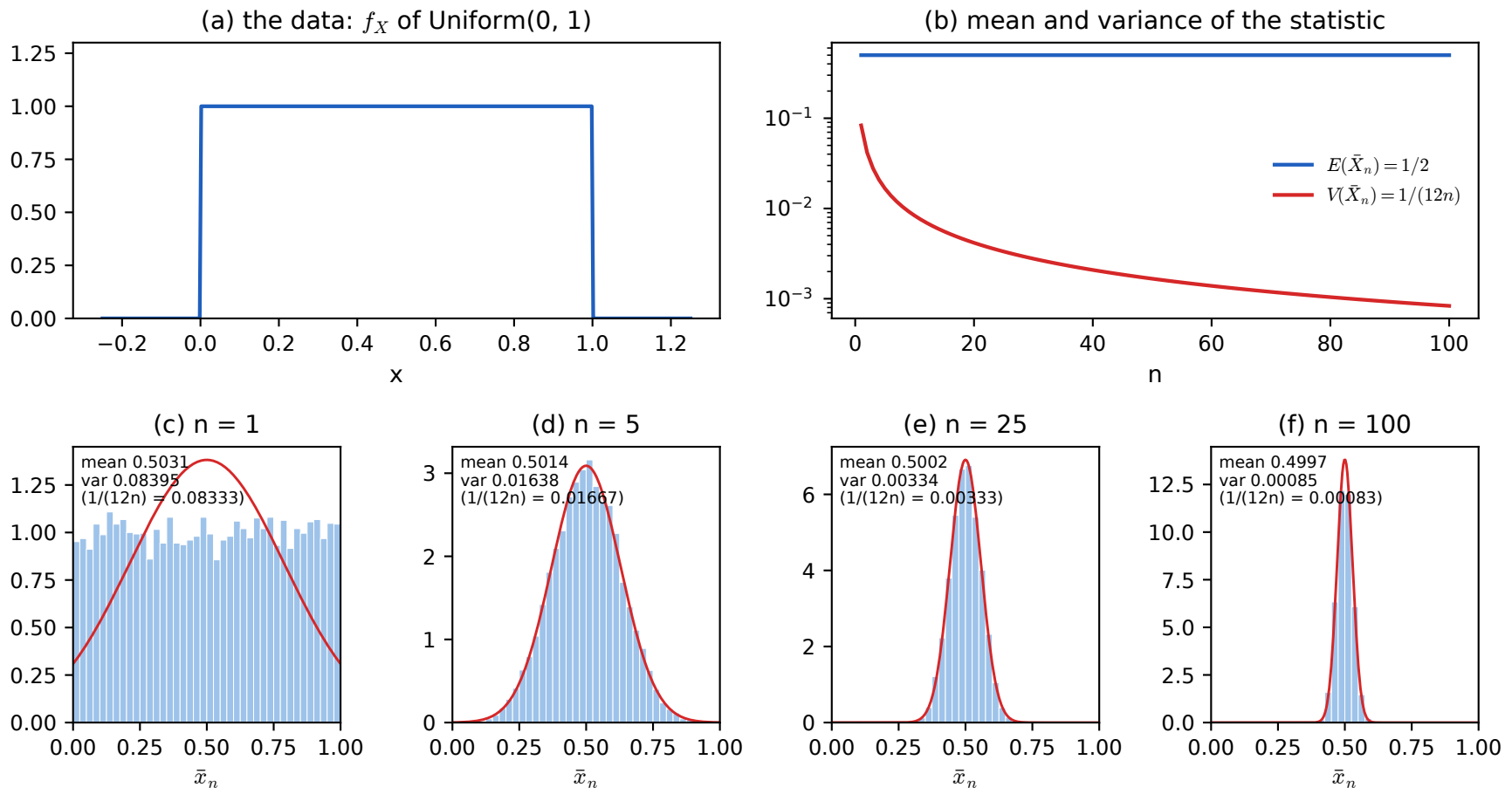

(a) the data: f_X of Uniform(0, 1)
x
(b) mean and variance of the statistic
n
$E(\bar{X}_n) = 1/2$
$V(\bar{X}_n) = 1/(12n)$
(c) n = 1
mean 0.5031
var 0.08395
(1/(12n) = 0.08333)
(d) n = 5
mean 0.5014
var 0.01638
(1/(12n) = 0.01667)
(e) n = 25
mean 0.5002
var 0.00334
(1/(12n) = 0.00333)
(f) n = 100
mean 0.4997
var 0.00085
(1/(12n) = 0.00083)
$\bar{x}_n$