# Question 7

Two-sample Kolmogorov-Smirnov test

set.seed(96) x1 = rt(10, df = 40) x2 = rt(10, df = 40) ks.test(x1,x2,"pnorm",0, 1)

Two-sample Kolmogorov-Smirnov test

data: x1 and x2

D = 0.3, p-value = 0.7869

alternative hypothesis: two-sided

set.seed(96) x1 = rt(100, df = 40) x2 = rt(100, df = 40) ks.test(x1,x2,"pnorm",0, 1)

Two-sample Kolmogorov-Smirnov test

data: x1 and x2

D = 0.26, p-value = 0.002318

alternative hypothesis: two-sided

set.seed(96) x1 = rt(1000, df = 40) x2 = rt(1000, df = 40) ks.test(x1,x2,"pnorm",0, 1)

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| --- | --- | --- |
| Degree of Freedom | KS t statistic | P - value |
| 40 | 0.046 | 0.2406 |
| 20 | 0.039 | 0.4324 |
| 10 | 0.042 | 0.341 |
| 100 | 0.058 | 0.06919 |
| 200 | 0.06 | 0.054 |

The value for degree of freedom should be 200 to approximate standard normal distribution.