Recommended exercises

The exercises below are selected from the sixth edition of Durbin's book . The same exercises may also be found in the fifth edition and usually with the same numerotation. The exceptions are listed with a V for their numbers in the fifth edition. A star * indicates that the exercise is more difficult.

Vecka 4

3.1-3.8, 3.13, 3.24, 4.1, 4.2, 5.1-5.12, 5.17, 6.1-6.3, 6.5, 6.9.

Vecka 5

7.1, 7.2, 7.13, 7.14, 7.22*-7.24*, 9.5-9.8 , 10.1-10.3 , 10.13 , 10.25, 10.26, 11.3, 11.13-11.17*, 12.7 , 12.20 , 12.21.

Vecka 6

13.6, 13.7, 13.9, 13.19*, 13.20, 13.21, 14.3-14.7, 14.9, 14.18, 14.25, 14.14, 14.23, 14.24, 14.31, 14.32, 14.33, 14.34, 15.24*, 16.2, 16.5, 16.7, 16.15, 17.2, 17.4, 17.7, 17.10, 17.12, 17.24, 17.25, 17.27, 17.30, 17.32.

Vecka 7

15.7, 15.9, 15.12, 15.17-15.19, 15.21, 17.14, 17.15*, 18.11*-18.14, 19.1, 19.2-19.5, 19.7, 19.14, 19.15, 19.21=V19.19, 19.22=V19.20, 19.23=V19.21, 19.27=V19.25, 19.32=V19.30, 19.34=V19.32, 21.5-21.10, 21.15-21.18, 21.26-21.28*, 21.34, 21.35.

Vecka 8

22.1, 22.2, 22.6, 22.12, 22.14, determine the quotient groups: (a) $4\mathbf{Z}/12\mathbf{Z}$ (b) $\mathbf{R}^{\#}/\mathbf{R}_{>0}$, 23.2, 23.4, 23,12, 23.12, 23.13, V23.20*, 56.5= V53.5, 56.6= V53.6, 56.8= V53.8, 56.9= V53.9, 57.5= V54.5, 57.13= V54.13, 58.1= V55.1, 58.2= V55.2, 58.7= V55.7.

Vecka 9

25.1, 25.4, 25.5, 25.7, 25.21, 26.1-26.9, 26.13, 26.18, 26.23*, 27.20*, 27.21, 27.23, 34.6, 34.8, 35.4-35.6, 35.9, 35.12, 35.13, 35.18, 36.1, 36.9, 36.11, 36.12, 36.22*-36.24*, 37.2-37.5, 37.8.

Vecka 10

38.1-38.4, 38.9, 38.12-38.15, 38.18*-38.20*, 38.22, 38.24*, show that any R-ideal I which contains an invertertible element is equal to R, 39.1-39.4, 39.7, 39.8*-39.10*, 39.12*, 41.2,41.3, 41.12, 42.4, show that any field of characteristic 0 contains a subfield isomorphic to $\mathbf{Q}$, determine the minimal polynomials for $\sqrt{2}+\sqrt{3}$ and $i=\sqrt{-1}$ over $\mathbf{Q}$, 40.6-40.10, 50.3=V45.3, 50.4=V45.4, 50.5=V45.5.

Vecka 11

44.1, 44.18, 30.3, 30.8, 35.14. Let $a\neq0$ and $f(x)$ be a polynomial such that $f(x^n)$ is divisible by $(x-a)$. Show that $f(x^n)$ is divisible by (x^n-a^n).