2016/2017

Vyřešte soustavu rovnic

1.
$$\begin{aligned} 2x_1 + x_3 - x_4 &= 2 \\ 3x_1 + x_2 + 2x_3 &= 2 \\ 2x_1 - 3x_2 + x_4 &= -2 \\ -x_2 - x_3 + 2x_4 &= -2 \\ 2x_1 + 3x_2 + 3x_3 + 3x_4 &= -1 \end{aligned}$$

2.
$$\begin{aligned} 2x_1 + 2x_2 - x_3 &= 3 \\ 2x_1 + x_2 - x_4 &= 1 \\ 4x_1 + 2x_2 + x_3 &= 3 \\ 2x_1 + x_2 + x_3 + x_4 &= 2 \end{aligned}$$

3.
$$\begin{aligned} 2x_1 + x_2 - 2x_4 &= 2 \\ 3x_1 + 2x_2 - 2x_3 + x_4 &= 1 \\ -x_1 - x_2 + 2x_3 - 3x_4 &= 1 \\ 3x_3 - x_1 &= 2 \end{aligned}$$

4.
$$\begin{aligned} 2x_1 + 2x_2 + x_3 - x_4 &= 0 \\ 2x_1 + 3x_3 + x_4 &= 0 \\ 3x_1 + 3x_2 + 5x_3 + 2x_4 &= 0 \end{aligned}$$

5.
$$\begin{aligned} x_1 + x_2 - x_3 - x_4 &= 1 \\ 2x_1 - 2x_2 - 2x_3 + 2x_4 &= -2 \\ -3x_1 - 3x_2 + 3x_3 + 3x_4 &= -3 \\ -4x_1 + 4x_2 + 4x_3 - 4x_4 &= 4 \end{aligned}$$

6.
$$\begin{aligned} 2x_1 + 2x_2 + x_3 &= 1 \\ 2x_2 + 2x_3 + x_4 &= -1 \\ x_1 + 2x_3 + 2x_4 &= 1 \\ 2x_1 + x_3 - x_4 &= 0 \end{aligned}$$

7.
$$\begin{aligned} 2x_1 + x_2 - x_4 &= 4, \\ 2x_1 + x_3 - x_4 &= 3, \\ -2x_1 + x_2 + 3x_4 &= -4, \\ x_2 + x_3 + 2x_4 &= -1 \end{aligned}$$

8.
$$\begin{aligned} 2x_1 + 2x_2 + x_3 - 2x_4 &= 2 \\ 2x_1 + x_3 + x_4 &= 2 \\ 3x_4 - 2x_2 &= 0 \end{aligned}$$

9.
$$\begin{aligned} 2x_1 + 2x_2 + x_3 - 2x_4 &= 2 \\ 2x_1 + x_3 + x_4 &= 1 \\ 2x_2 - 3x_4 &= 1 \end{aligned}$$

10.
$$\begin{aligned} 2x_1 + 2x_2 + x_3 &= 1 \\ 2x_2 + 2x_3 + x_4 &= -1 \\ x_1 + 2x_3 + 2x_4 &= 1 \\ 2x_1 - x_3 - x_4 &= 2 \end{aligned}$$

11.
$$\begin{aligned} 2x_1 + x_2 + x_3 &= 3 \\ 2x_2 + 3x_3 + x_4 &= 3 \\ 2x_1 - x_2 - 2x_3 - x_4 &= 0 \\ 2x_2 + x_3 - x_4 &= 9 \end{aligned}$$

12.
$$\begin{aligned} 2x_1 + x_2 - x_4 &= 0 \\ 3x_1 + 2x_2 - 2x_3 + x_4 &= 3 \\ -x_1 - x_2 + 2x_3 - 2x_4 &= -3 \\ 3x_1 + 2x_2 + x_3 - 2x_4 &= 0 \end{aligned}$$

13.
$$\begin{aligned} 2x_1 + x_2 + x_3 &= 1 \\ 2x_2 + 3x_3 + x_4 &= -2 \\ 2x_1 - x_2 - 2x_3 - x_4 &= 3 \\ 2x_1 - x_3 - x_4 &= 2 \end{aligned}$$

14.
$$\begin{aligned} 2x_1 + x_2 + 2x_3 + x_4 &= 2, \\ 3x_1 + x_3 - x_4 &= 4, \\ -2x_1 + x_2 + 3x_4 &= -4, \\ x_1 + x_2 + x_3 + 2x_4 &= 0. \end{aligned}$$

15.
$$\begin{aligned} 2x_1 + x_2 + x_3 &= 1 \\ 2x_2 + 3x_3 + x_4 &= -2 \\ 2x_1 - x_2 - 2x_3 - x_4 &= 3 \\ 2x_2 + x_3 - x_4 &= -2 \end{aligned}$$

16.
$$\begin{aligned} 2x_1 + x_2 + x_3 - x_4 &= 2 \\ 4x_1 + x_2 + x_3 &= 2 \\ 2x_1 + x_4 &= 0 \\ -x_2 - x_3 + 2x_4 &= -2 \end{aligned}$$

17.
$$\begin{aligned} 2x_1 + x_3 - x_4 &= 1 \\ 3x_1 + x_2 + 2x_3 + x_4 &= 1 \\ x_1 + x_2 + x_3 + 2x_4 &= 0 \\ 2x_1 + 2x_2 + x_3 + 5x_4 &= 1 \end{aligned}$$

18.
$$\begin{aligned} 2x_1 + x_2 + 2x_3 + x_4 &= 3, \\ 3x_1 + x_2 - x_3 - x_4 &= 3, \\ -x_1 + 3x_3 + 2x_4 &= 0, \\ 2x_1 + x_2 + x_3 &= 3. \end{aligned}$$

19.
$$\begin{aligned} 2x_1 + x_2 + x_3 + x_4 &= 2, \\ 3x_1 + x_3 - x_4 &= 5, \\ -2x_1 + x_2 + 3x_4 &= -5, \\ x_1 + x_2 + x_3 + 2x_4 &= 0. \end{aligned}$$

20.
$$\begin{aligned} 2x_1 + 2x_2 + x_3 &= 1 \\ 2x_2 + 2x_3 + x_4 &= -1 \\ 3x_1 + x_3 + x_4 &= 3 \\ 2x_1 - x_3 - x_4 &= 2 \end{aligned}$$

21.
$$\begin{aligned} 2x_1 + 2x_2 + x_3 - x_4 &= 2 \\ 2x_1 + 3x_3 + x_4 &= 0 \\ 3x_1 + 3x_2 + 5x_3 + 2x_4 &= 3 \end{aligned}$$

22.
$$\begin{aligned} 2x_1 + x_2 + x_3 + x_4 &= 2, \\ 3x_1 + x_3 - x_4 &= 5, \\ -2x_1 + x_2 + 3x_4 &= -5, \\ 2x_1 + x_2 + x_3 + 2x_4 &= 1. \end{aligned}$$

23.
$$\begin{aligned} 2x_1 + x_2 + 3x_3 - x_4 &= 1 \\ 2x_1 + 3x_2 + 4x_3 + 2x_4 &= 4 \\ 3x_1 + x_2 + x_3 + x_4 &= 4 \end{aligned}$$

24.
$$\begin{aligned} 2x_1 + x_2 + x_3 &= 1 \\ 2x_2 + 3x_3 + x_4 &= -2 \\ 2x_1 - x_2 - 2x_3 - x_4 &= 3 \\ 4x_1 - x_3 - x_4 &= 4 \end{aligned}$$

25.
$$\begin{aligned} 2x_1 + 2x_3 - x_4 &= -1 \\ 2x_1 - x_2 + 3x_3 + x_4 &= 0 \\ 3x_1 + 3x_2 + 2x_4 &= 5 \end{aligned}$$

26.
$$\begin{aligned} 2x_1 + 2x_2 - x_3 &= -1 \\ 2x_1 + x_2 - x_4 &= 0 \\ 4x_1 + 2x_2 + x_3 &= 3 \\ 2x_1 + x_2 + x_3 + x_4 &= 3 \end{aligned}$$

27.
$$\begin{aligned} 2x_1 + x_2 + x_3 + x_4 &= 2 \\ 4x_1 + x_2 + x_3 &= 2 \\ 2x_1 - x_4 &= 0 \\ -x_2 - x_3 - 2x_4 &= -2 \end{aligned}$$

28.
$$\begin{aligned} 2x_1 + x_2 + 3x_3 - x_4 &= 1 \\ 2x_1 + 3x_2 + 2x_3 + 2x_4 &= 4 \\ 2x_2 - x_3 + 3x_4 &= 3 \\ 2x_1 + 2x_2 - x_3 - 3x_4 &= -1 \end{aligned}$$

29.
$$\begin{aligned} 2x_1 + 2x_3 - x_4 &= -1 \\ 2x_1 - x_2 + 3x_3 &= -1 \\ 3x_1 + 3x_2 + 2x_4 &= 5 \end{aligned}$$

30.
$$\begin{aligned} 2x_1 + x_3 - x_4 &= 2 \\ 3x_1 + x_2 + 2x_3 + x_4 &= 1 \\ x_1 + x_2 + x_3 + 2x_4 &= -1 \\ x_1 + 2x_2 + 2x_3 + 5x_4 &= -4 \end{aligned}$$

31.
$$\begin{aligned} 2x_1 + x_2 + 2x_3 - x_4 &= 4, \\ 3x_1 + x_3 - x_4 &= 4, \\ -2x_1 + x_2 + 3x_4 &= -4, \\ x_1 + x_2 + x_3 + 2x_4 &= 0. \end{aligned}$$

32.
$$\begin{aligned} 2x_1 + x_2 + x_3 - x_4 &= 0 \\ 3x_1 + x_2 + 2x_3 &= 2 \\ 2x_1 + x_4 &= 3 \\ -x_2 - x_3 + 2x_4 &= 3 \\ 2x_1 + 3x_2 + 3x_3 + 3x_4 &= 2 \end{aligned}$$

33.
$$\begin{aligned} 2x_1 - 2x_2 + 3x_3 - x_4 &= 2 \\ 4x_1 - 2x_2 + 2x_3 + x_4 &= 3 \\ 2x_1 - x_3 + 2x_4 &= 1 \\ -2x_2 + 4x_3 - 3x_4 &= 1 \end{aligned}$$

34.
$$\begin{aligned} 2x_1 + x_2 + x_3 - x_4 &= 2 \\ 4x_1 + x_2 + x_3 &= 1 \\ 2x_1 + x_4 &= -1 \\ -x_2 - x_3 + 2x_4 &= -3 \\ 2x_1 + 3x_2 + 3x_3 + 3x_4 &= 0 \end{aligned}$$

35.
$$\begin{aligned} x_1 + 2x_2 + 3x_3 + 4x_4 &= 4, \\ 2x_1 + x_2 - x_4 &= 2, \\ 3x_1 + 3x_2 + 3x_3 + 3x_4 &= 6, \\ -x_1 + x_2 + 3x_3 + 5x_4 &= 2. \end{aligned}$$

36.
$$\begin{aligned} 2x_1 + x_2 - x_4 &= 3 \\ 2x_1 - 2x_3 + 2x_4 &= 0 \\ -3x_2 + 3x_3 + 3x_4 &= -3 \\ -4x_1 + 4x_2 + 4x_3 &= -4 \end{aligned}$$

37.
$$\begin{aligned} 2x_1 + x_3 - x_4 &= 1 \\ 3x_1 + x_2 + 2x_3 + x_4 &= 1 \\ 2x_1 - x_2 + 2x_3 + 3x_4 &= 0 \\ 2x_1 + 2x_2 + x_4 &= 2 \end{aligned}$$

38.
$$\begin{aligned} 2x_1 + 2x_2 + x_3 - x_4 &= -1 \\ 2x_1 + 3x_3 + x_4 &= -1 \\ 2x_3 + 2x_4 &= -2 \end{aligned}$$

39.
$$\begin{aligned} 3x_1 + 2x_2 + x_3 &= 4 \\ 3x_2 + 2x_3 + x_4 &= 2 \\ 3x_1 - x_2 - x_3 - x_4 &= 2 \\ x_2 + 2x_3 + 3x_4 &= 2 \end{aligned}$$

40.
$$\begin{aligned} 4x_1 + 2x_2 + x_3 - x_4 &= -1 \\ 3x_1 + 3x_3 + x_4 &= -1 \\ 2x_1 - 2x_2 + 2x_3 + 2x_4 &= 0 \end{aligned}$$

41.
$$\begin{aligned} 2x_1 - 2x_2 + 3x_3 - x_4 &= 0 \\ 4x_1 - 2x_2 + 2x_3 + x_4 &= 1 \\ 2x_1 - x_3 + 2x_4 &= 1 \\ -2x_2 + 4x_3 - 3x_4 &= -1 \end{aligned}$$

42.
$$\begin{aligned} 2x_1 + x_2 + 3x_3 - x_4 &= -2 \\ 2x_1 + 3x_2 + 4x_3 + 2x_4 &= 0 \\ 3x_1 + x_2 + x_3 + x_4 &= 3 \end{aligned}$$

43.
$$\begin{aligned} 2x_1 + x_2 + x_3 + x_4 &= 2 \\ 4x_1 + x_3 + x_4 &= 1 \\ 2x_1 - x_2 &= -1 \\ -2x_2 - x_3 - x_4 &= -3 \end{aligned}$$

44.
$$\begin{aligned} 3x_1 + 2x_2 - x_3 + 2x_4 &= 2 \\ 3x_2 + 2x_3 + 3x_4 &= 2 \\ 3x_1 - x_2 - 3x_3 - x_4 &= 0 \end{aligned}$$

45.
$$\begin{aligned} 2x_1 - 2x_2 + x_3 - x_4 &= -1 \\ 4x_1 - 2x_2 + x_3 + x_4 &= -1 \\ 2x_1 + 2x_4 &= 0 \\ -2x_2 + x_3 - 3x_4 &= -1 \end{aligned}$$

46.
$$\begin{aligned} 2x_1 + x_3 - x_4 &= 1 \\ 3x_1 + x_2 + 2x_3 + x_4 &= 1 \\ x_1 + x_2 + x_3 + 2x_4 &= 0 \\ x_1 + 2x_2 + x_3 + 5x_4 &= 0 \end{aligned}$$

47.
$$\begin{aligned} 2x_1 + 2x_3 - x_4 &= -1 \\ 2x_1 - x_2 + 3x_3 &= -1 \\ 3x_1 + 3x_2 + x_4 &= 4 \end{aligned}$$

48.
$$\begin{aligned} 2x_1 + x_2 - x_3 &= 1 \\ 3x_1 + 2x_2 - 2x_3 + x_4 &= 3 \\ -x_1 + 2x_2 + 2x_3 - 3x_4 &= -1 \\ 2x_1 + 4x_2 - 2x_4 &= 2 \end{aligned}$$

49.
$$\begin{aligned} 2x_1 + x_2 + x_3 - x_4 &= 2 \\ 4x_1 + x_2 + x_3 &= 1 \\ 2x_1 + x_4 &= -1 \\ -x_2 - x_3 + 2x_4 &= -3 \end{aligned}$$

50.
$$\begin{aligned} 3x_1 + 2x_2 - x_3 + 2x_4 &= 2 \\ 3x_2 + 2x_3 + 3x_4 &= 2 \\ 3x_1 - x_2 - 3x_3 - x_4 &= 0 \\ 3x_1 - x_3 &= 2 \end{aligned}$$

2016/2017

Vyřešte soustavu rovnic

1. $x_1 = 1,\ x_2 = 1,\ x_3 = -1,\ x_4 = -1,\ s,t \in \mathbb{R}.$

2. $x_1 = -1+2t,\ x_2 = 3-3t,\ x_3 = 1-2t,\ x_4 = t,\ t \in \mathbb{R}.$

3. $x_1 = 1+3t,\ x_2 = -4t,\ x_3 = 1+t,\ x_4 = t,\ t \in \mathbb{R}.$

4. $x_1 = t,\ x_2 = 0,\ x_3 = -t,\ x_4 = t,\ t \in \mathbb{R}.$

5. $x_1 = 0+t,\ x_2 = 1+s,\ x_3 = t,\ x_4 = s,\ s,t \in \mathbb{R}.$

6. $x_1 = 1,\ x_2 = 0,\ x_3 = -1,\ x_4 = 1.$

7. $x_1 = 2+t,\ x_2 = -t,\ x_3 = -1-t,\ x_4 = t,\ t \in \mathbb{R}.$

8. $x_1 = 1-s-t,\ x_2 =, 3s+2t\ x_3 = 2t,\ x_4 = 2s,\ s,t \in \mathbb{R}.$

9. $x_1 = \frac{1}{2}-s-t,\ x_2 = \frac{1}{2}+3s,\ x_3 = 2t,\ x_4 = 2s,\ s,t \in \mathbb{R}.$

10. $x_1 = 1,\ x_2 = -\frac{1}{2}+t,\ x_3 = -2t,\ x_4 = 2t,\ t \in \mathbb{R}.$

11. $x_1 = 0,\ x_2 = 6+t,\ x_3 = -3-t,\ x_4 = t,\ t \in \mathbb{R}.$

12. $x_1 = -1+t,\ x_2 = 2-t,\ x_3 = -1+t,\ x_4 = t,\ t \in \mathbb{R}.$

13. $x_1 = 1,\ x_2 = -1+t,\ x_3 = -t,\ x_4 = t,\ t \in \mathbb{R}.$

14. $x_1 = 1,\ x_2 = -2-3t,\ x_3 = 1+t,\ x_4 = t,\ t \in \mathbb{R}.$

15. $x_1 = 1,\ x_2 = -1+t,\ x_3 = -t,\ x_4 = t,\ t \in \mathbb{R}.$

16. $x_1 = s,\ x_2 = 2-4s-t,\ x_3 = t,\ x_4 = 2s,\ s,t \in \mathbb{R}.$

17. $x_1 = 1,\ x_2 = -3t,\ x_3 = -1+t,\ x_4 = t,\ t \in \mathbb{R}.$

18. $x_1 = -t,\ x_2 = 3+3t,\ x_3 = -t,\ x_4 = t,\ s,t \in \mathbb{R}.$

19. $x_1 = 2+t,\ x_2 = -1-t,\ x_3 = -1-2t,\ x_4 = t,\ t \in \mathbb{R}.$

20. $x_1 = 1,\ x_2 = \frac{1}{2}+t,\ x_3 = -2t,\ x_4 = 2t,\ t \in \mathbb{R}.$

21. $x_1 = t,\ x_2 = 1,\ x_3 = -t,\ x_4 = t,\ t \in \mathbb{R}.$

22. $x_1 = 1,\ x_2 = 0,\ x_3 = 1,\ x_4 = -1.$

23. $x_1 = 1,\ x_2 = 2-2t,\ x_3 = -1+t,\ x_4 = t,\ t \in \mathbb{R}.$

24. $x_1 = 1+t+s,\ x_2 = -1-2t-6t,\ x_3 = 4s,\ x_4 = 4t,\ s,t \in \mathbb{R}.$

25. $x_1 = -t,\ x_2 = 1+t,\ x_3 = t,\ x_4 = 1,\ t \in \mathbb{R}.$

26. $x_1 = -1+2t,\ x_2 = 2-3t,\ x_3 = 3-2t,\ x_4 = t,\ t \in \mathbb{R}.$

27. $x_1 = s,\ x_2 = 2-4s-t,\ x_3 = t,\ x_4 = 2s,\ s,t \in \mathbb{R}.$

28. $x_1 = -2+t,\ x_2 = 2-2t,\ x_3 = 1-t,\ x_4 = t,\ t \in \mathbb{R}.$

29. $x_1 = -t,\ x_2 = 1+t,\ x_3 = t,\ x_4 = 1,\ t \in \mathbb{R}.$

30. $x_1 = 2+t,\ x_2 = -1-2t,\ x_3 = -2-t,\ x_4 = t,\ t \in \mathbb{R}.$

31. $x_1 = 1-t,\ x_2 = 1-5t,\ x_3 = 4t,\ x_4 = t,\ t \in \mathbb{R}.$

32. $x_1 = 1,\ x_2 = -1,\ x_3 = 0,\ x_4 = 1,\ s,t \in \mathbb{R}.$

33. $x_1 = \frac{1}{2} - 2s + t,\ x_2 = \frac{1}{2} - 3s + 4t,\ x_3 = 2t,\ x_4 = 2s,\ s,t \in \mathbb{R}.$

34. $x_1 = 0,\ x_2 = 1 - t,\ x_3 = t,\ x_4 = -1,\ t \in \mathbb{R}.$

35. $x_1 = 2s + t,\ x_2 = 2 - 3s - 2t,\ x_3 = t,\ x_4 = s,\ s,t \in \mathbb{R}.$

36. $x_1 = 1,\ x_2 = 0,\ x_3 = 0,\ x_4 = -1.$

37. $x_1 = 1,\ x_2 = 0,\ x_3 = -1,\ x_4 = 0.$

38. $x_1 = 1 + t,\ x_2 = -1,\ x_3 = -1 - t,\ x_4 = t,\ t \in \mathbb{R}.$

39. $x_1 = 1,\ x_2 = t,\ x_3 = 1 - 2t,\ x_4 = t,\ t \in \mathbb{R}.$

40. $x_1 = 0,\ x_2 = -1 + 2t,\ x_3 = -t,\ x_4 = -1 + 3t,\ t \in \mathbb{R}.$

41. $x_1 = \frac{1}{2} - 2s + t,\ x_2 = \frac{1}{2} - 3s + 4t,\ x_3 = 2t,\ x_4 = 2t,\ s,t \in \mathbb{R}.$

42. $x_1 = 1,\ x_2 = 2 - 2t,\ x_3 = -2 + t,\ x_4 = t,\ s,t \in \mathbb{R}.$

43. $x_1 = \frac{1}{4} - s - t,\ x_2 = \frac{3}{2} - 2s - 2t,\ x_3 = 4t,\ x_4 = 4s,\ s,t \in \mathbb{R}.$

44. $x_1 = \frac{2}{9} + 7t,\ x_2 = \frac{2}{3} - s - 6t,\ x_3 = 9t,\ x_4 = s,\ s,t \in \mathbb{R}.$

45. $x_1 = -2s,\ x_2 = \frac{1}{2} - 3s + t,\ x_3 = 2t,\ x_4 = 2s,\ s,t \in \mathbb{R}.$

46. $x_1 = 1,\ x_2 = -3t,\ x_3 = -1 + t,\ x_4 = t,\ t \in \mathbb{R}.$

47. $x_1 = -t,\ x_2 = 1 + t,\ x_3 = t,\ x_4 = 1,\ t \in \mathbb{R}.$

48. $x_1 = -1 + t,\ x_2 = 1,\ x_3 = -2 + 2t,\ x_4 = t,\ t \in \mathbb{R}.$

49. $x_1 = -\frac{1}{2} + s,\ x_2 = 3 - 4s - t,\ x_3 = t,\ x_4 = 2s,\ s,t \in \mathbb{R}.$

50. $x_1 = 1,\ x_2 = -t,\ x_3 = 1,\ x_4 = t,\ t \in \mathbb{R}.$