

## Chapter 2

### Section 2.2

#### Section 2.2.5

- Quiz 42: False
- Quiz 43: True
- Quiz 44: True
- Quiz 45: False
- Quiz 46: False
- Quiz 47: True
- Quiz 48: False
- Quiz 49: True
- Quiz 50: True
- Quiz 51: True
- Quiz 52: False
- Quiz 53: True
- Quiz 54: False
- Quiz 55: False
- Quiz 56: 2
- Quiz 57: 3
- Quiz 58: 3
- Quiz 59: 2
- Quiz 60: 1

#### Section 2.2.6

Exercise 2.2: We can set up the system of linear equations such that

$$\begin{array}{rcl} a & + & b & & = & 3 \\ -a & - & 2b & & = & -5 \\ & & & c & = & 2 \\ & & & c & + & d & = & 4. \end{array}$$

So we have the solution  $a = 1, b = 2, c = 2, d = 2$ .

Exercise 2.2:

1.

$$\begin{bmatrix} -15 & -24 & -31 \\ -5 & -27 & 34 \end{bmatrix}.$$

2.

$$\begin{bmatrix} -15 & -24 & -31 \\ -5 & -27 & 34 \end{bmatrix}.$$

3.

$$\begin{bmatrix} -1 & -5 & 21 \\ 10 & 50 & -10 \\ -19 & 19 & 46 \end{bmatrix}.$$

4. 
$$\begin{bmatrix} -5 & -29 & 10 \\ 17 & 62 & 16 \\ -19 & -19 & 38 \end{bmatrix}.$$

5. 
$$\begin{bmatrix} -5 & -37 & 9 \\ 24 & -30 & 20 \end{bmatrix}.$$

6. 
$$\begin{bmatrix} -5 & 24 \\ -37 & -30 \\ 9 & 20 \end{bmatrix}.$$

7. Correction:  $C \cdot B^T + -A^T$

$$\begin{bmatrix} -15 & 14 \\ 5 & -32 \\ 9 & -6 \end{bmatrix}.$$

8. Correction:  $(3 \cdot C + D) + (2 \cdot E - F) \cdot F^T$

$$\begin{bmatrix} -77 & -19 & 25 \\ -6 & 4 & -12 \\ 70 & 11 & -48 \end{bmatrix}.$$

9. Correction:  $-A^T \cdot B \cdot (C - 2 \cdot D) - (2 \cdot C + D) + ((-1) \cdot E + 2 \cdot F) \cdot F^T$

$$\begin{bmatrix} 143 & 90 & 89 \\ -111 & -224 & -367 \\ -39 & 40 & 52 \end{bmatrix}.$$

10. 
$$\begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \end{bmatrix}.$$

Exercise 2.6:

$$A = \begin{bmatrix} 5 & 1 & 10 & 6 \\ -1 & -7 & -6 & 5 \\ -7 & 4 & -1 & 1 \\ -5 & 3 & -4 & -8 \end{bmatrix}.$$

$$x = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix}.$$

$$b = \begin{bmatrix} 2 \\ 38 \\ 24 \\ -18 \end{bmatrix}.$$

Exercise 2.8:

$$A = \begin{bmatrix} 8 & 6 & -4 & -3 \\ -5 & 8 & 1 & 6 \\ 6 & 5 & 4 & -1 \\ -5 & 10 & 8 & -1 \end{bmatrix}.$$

$$x = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \\ x_4 \end{bmatrix}.$$

$$b = \begin{bmatrix} -75 \\ -7 \\ -20 \\ -3 \end{bmatrix}.$$

## Section 2.3

### Section 2.3.5

- Quiz 61: True
- Quiz 62: True
- Quiz 63: False
- Quiz 64: True
- Quiz 65: False
- Quiz 66: True
- Quiz 67: True
- Quiz 68: False
- Quiz 69: True
- Quiz 70: True
- Quiz 71: False
- Quiz 72: True
- Quiz 73: False
- Quiz 74: False
- Quiz 75: False
- Quiz 76: True
- Quiz 77: True
- Quiz 78: True

### Section 2.3.6

Exercise 2.18:

$$A^{-1} = \begin{bmatrix} 1/3 & 0 \\ 1/3 & 1/3 \end{bmatrix}.$$

Exercise 2.20:

$$A^{-1} = \begin{bmatrix} 0.21739130 & -0.1739130 \\ 0.08695652 & 0.1304348 \end{bmatrix}.$$

Exercise 2.23:

$$A^{-1} = \begin{bmatrix} 1/a_{11} & 0 & \cdots & 0 & 0 \\ 0 & 1/a_{22} & \cdots & 0 & 0 \\ \vdots & \vdots & \ddots & \vdots & \vdots \\ 0 & 0 & \cdots & 1/a_{n-1n-1} & 0 \\ 0 & 0 & \cdots & 0 & 1/a_{nn} \end{bmatrix},$$

## Section 2.4

### Section 2.4.5

Quiz 79: True  
Quiz 80: True  
Quiz 81: True  
Quiz 82: True  
Quiz 83: True  
Quiz 84: True  
Quiz 85: True

### Section 2.4.6

Exercise 2.38: It will add  $-3$  the second row of  $A$  and the fourth row of the matrix  $A$ .

Exercise 2.40:

1.

$$E = \begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix},$$

2.

$$E = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \\ 0 & 0 & 1 & 0 \\ 0 & 1 & 0 & 0 \end{bmatrix},$$

Exercise 2.42: No.