

Answers to Study Guide Unit 5 – Matrices

1. 3×1

2. 2×4

3. 1×1

4. 1×5

5. 11

6. 2

7. $\begin{bmatrix} -13 & -8 & 18 \\ 0 & 11 & -19 \end{bmatrix}$

8. $\begin{bmatrix} 17 & -17 \\ 13 & 2 \end{bmatrix}$

9. Impossible, different dimensions

10. $\begin{bmatrix} -4 & 10 \\ 14 & 0 \\ -10 & -12 \end{bmatrix}$

11. $\begin{bmatrix} 14 & -2 & 8 \\ 14 & -10 & 40 \\ 36 & -12 & 48 \end{bmatrix}$

12. Impossible, columns of first matrix do not match rows of second matrix

13. -42

14. 96

15. $\begin{bmatrix} \frac{3}{2} & -2 \\ -\frac{7}{2} & 5 \end{bmatrix}$

16. Multiply A and B together and you should get I_n (2x2 identity matrix)

17. $\begin{bmatrix} -\frac{2}{13} & \frac{11}{130} & -\frac{1}{13} \\ -\frac{3}{65} & \frac{1}{65} & \frac{1}{13} \\ \frac{6}{13} & -\frac{2}{13} & \frac{3}{13} \end{bmatrix}$

18. $(-6, -1)$

19. $(2, -1, -2)$

20. $z = 3$

21. Collinear

22. Not collinear

23. 24 square units

24. $\frac{7}{4}$ or 1.75 square units

25. $x = \frac{16}{5}$ or 0

26. $x = 19$ or 3

27. $x = -1$ or 4

28. $x = -1$ or 3

29. 8 carnations, 4 roses

30. 16,667 units

31. $BA = [\$274,150 \quad \$303,150]$

32. $A = \begin{bmatrix} 0 & 2 & 2 & 1 \\ 2 & 0 & 0 & 1 \\ 2 & 0 & 0 & 1 \\ 1 & 1 & 1 & 0 \end{bmatrix}$ alphabetical order

33. $A^2 = \begin{bmatrix} 9 & 1 & 1 & 4 \\ 1 & 5 & 5 & 2 \\ 1 & 5 & 5 & 2 \\ 4 & 2 & 2 & 3 \end{bmatrix}$

34. 4