Review Exercise 2

Exercise 1A

1. **(a)** Does not exist; the number of columns in **A** is not equal to the number of rows in **B**.

(b) $\begin{pmatrix} 6 & 4 & 2 \\ 9 & 4 & 4 \end{pmatrix}$

(c) $\begin{pmatrix} 14 \\ 28 \end{pmatrix}$

(d) Does not exist; the number of columns in **C** is not equal to the number of rows in **BA**.

2. $a = -2, b = 3$

4. $bc - ad$

5. **(a)** $-\frac{2}{3}$

(b) -2

(c) -4

6. **(a)** $\begin{pmatrix} -1 & -1 \\ -3 & -2 \end{pmatrix}$

(b) $\begin{pmatrix} 76 & -33 \\ -99 & 43 \end{pmatrix}$

7. **(a)** $2k^2 + 3k - 3$

(b) $-\frac{7}{2}$ or 2

8. $\begin{pmatrix} 3 & 0 \\ 7 & 5 \end{pmatrix}$

9. **(a)** $\begin{pmatrix} 1 & \frac{1}{2} \\ 3 & 2 \end{pmatrix}$

(b) $\begin{pmatrix} 2 & 1 \\ 3p+3 & 2p+\frac{3}{2} \end{pmatrix}$

(c) $-\frac{1}{2}$

10. **(c)** $x = -7, y = -17$

11. **(a)** $\frac{1}{35}\begin{pmatrix} 5 & 2 \\ -5 & 5 \end{pmatrix}$

(b) $\lambda_1 = 6, \lambda_2 = -1$

12. **(a)** $\frac{1}{pq}\begin{pmatrix} q & q \\ 3p & 4p \end{pmatrix}$

(b) $\frac{1}{pq}\begin{pmatrix} pq & 4q^2 \\ 2p^2 & 13pq \end{pmatrix}$

13. **(a)** $\begin{pmatrix} 4 & 6 \\ 3 & 10 \end{pmatrix}$

(b) $\begin{pmatrix} -3 & 3 \\ -6 & 3 \end{pmatrix}$

(c) $\begin{pmatrix} -9 & 0 \\ 0 & -9 \end{pmatrix}$

(d) Enlargement scale factor 9, centre (0, 0)

14. **(a)** $\begin{pmatrix} -\frac{1}{\sqrt{2}} & -\frac{1}{\sqrt{2}} \\ -\frac{1}{\sqrt{2}} & \frac{1}{\sqrt{2}} \end{pmatrix}$

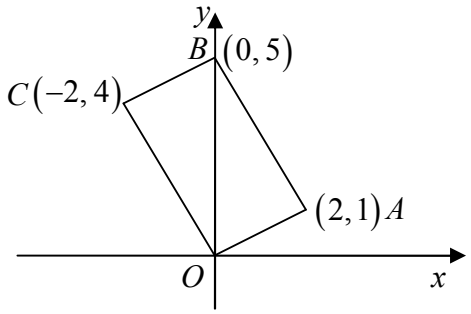
15. **(a)** $a = 3, b = -4, c = 2, d = -3$

(c) $p = 36, q = 25$

16. **(a)** $\begin{pmatrix} -1 & 2 \\ 0 & 3 \end{pmatrix}$

(b) $A\ (2, 1), B\ (0, 5), C\ (-2, 4)$

(c)



17. **(a)** $\begin{pmatrix} 2 & 0 \\ 0 & -2 \end{pmatrix}$

(b) Reflection in x-axis, followed by enlargement scale factor 2, centre (0, 0)

(c) (6, 0)

18. **(a)** $\mathbf{C} = \begin{pmatrix} -1 & -7 \\ 2 & 12 \end{pmatrix}$

(b) $\mathbf{D} = \begin{pmatrix} 1 & 2 \\ 4 & 10 \end{pmatrix}$

(d) $\frac{2m}{1+m}$

19. (a) **L** represents rotation through 90^{o}, anti-clockwise about (0, 0)
M represents an enlargement scale factor 2, centre (0, 0)

(c) $\theta = 45^{o}$, $k = \sqrt{2}$

(d) $\begin{pmatrix} 16 & 0 \\ 0 & 16 \end{pmatrix}$

20. (b) $\begin{pmatrix} 3 & 1 \\ -1 & 3 \end{pmatrix}$

25. (b) 17 730

26. 8841

27. 46 850

29. (b) 957 700

30. (b) 61 907

31. (b) 32 480

32. (b) 26 660

33. (b) 1 805 040

34. (b) -6

36. (b) $p = 13$, $q = 7$

37. (a) $p = 3$, $q = -1$, $r = -2$

(b) 23 703 950

38. (b) 247.5

52. (a) $24 \times 2^{4(n+1)} + 3^{4(n+1)} - 24 \times 2^{4n} - 3^{4n}$

56. (a) $p = 6$, $q = -8$