

Section 1: Algebra

- 1.1 a,b
 1.2 a,b
 1.3 2, 3, 6
 1.4 10
 1.5 6
 1.6 c
 1.7 transpose of the given matrix
 1.8

$$P = \pm \begin{bmatrix} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

- 1.9 (i) -1 ; (ii) 1
 1.10 1 and -1

Section 2: Analysis

- 2.1 a. conditionally convergent;
 b. divergent; c. absolutely convergent
 2.2 e^{-2}
 2.3 $2f(t)$
 2.4 $\frac{\pi}{4}$
 2.5 $a_n = a_0 + 2n, b_n = a_0 + 2n - 1, a_0 \in \mathbb{R}$
 2.6 a,c
 2.7 $e^{\frac{k(k+1)}{2a}}$
 2.8 a,b
 2.9 a,b,c
 2.10 $4(e^\pi - 1)$

- 3.1 b
 3.2 a,b
 3.3 $(a + b + c)^3$
 3.4 $\frac{2^{n+1}}{n+2} - 1$
 3.5 34
 3.6 4π
 3.7 6
 3.8 b,c
 3.9 $\frac{1}{\sqrt{3}}$
 3.10 $|h| < 1$

Note: Please accept any answer which is correct, but expressed in an equivalent, though different, form, where applicable.