

THE HONG KONG POLYTECHNIC UNIVERSITY
HONG KONG COMMUNITY COLLEGE

Subject Title : Engineering Mathematics

Subject Code : CCN2250

Session : Semester One, 2018/19

Numerical Answers

Question A1

- (a) $0.4413 - 0.7130i$
(b) $0.9090 + 1.0834i$; $-1.3927 + 0.2456i$; $0.4837 - 1.3289i$
(c) $A = \sqrt{29}$; $\theta = -0.3805$

Question A2

- (a) $6x + 12y - 3z - 9 = 0$
(b) 9.1089
(c) $2/9$

Question B1

- (a) i
(b) 9.4641

Question B2

- (c) $\frac{16\sqrt{3}}{3}$

Question B4

- (b)(i) A basis for $Col(A)$ is $\left\{ \begin{pmatrix} 1 \\ 1 \\ -2 \end{pmatrix}, \begin{pmatrix} -5 \\ -4 \\ 10 \end{pmatrix}, \begin{pmatrix} -8 \\ -6 \\ 17 \end{pmatrix} \right\}$

A basis for $Row(A)$ is $\{(1, 0, 0, 2), (0, 1, 0, 4), (0, 0, 1, 3)\}$

A basis for $Nul(A)$ is $\left\{ \begin{pmatrix} -2 \\ -4 \\ -3 \\ 1 \end{pmatrix} \right\}$

- (b)(ii) $\dim Col(A) = 3$; $\dim Row(A) = 3$; $\dim Nul(A) = 1$