SHEET 2

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| **1** | Consider the matrices below | |
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For the following state whether the matrices can be multiplied!

1. AB b) AC c) AE d) EA e) DC f) CD g) CE h) EC

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| **2** | If  then find |

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| **3** | If , then the determinant is |

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| **4** | Which of the following could be used to solve the system of equations  z |

a) If the equation above are put into the matrix equation AX equals B. Find the matrix A

b) Find the matric A inverse

c) Write down A inverse multiple by B matrix.

c) Work out the X matrix

SHEET 3

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| **1** | Find the order of each of the following matrices | | | |
| **(a)** |  | **(b)** |  |

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| **2** | Solve the following simultaneous equations using matrices, showing clearly the matrices that you have used and the process used.  3*a* + *b* − 3*c* + 4*d* = 34  –*a* − *b* + 2*c* − *d* = –2  *a* + 2*b* − 4*d* = 23  *–a* + 5*b* − *c* = 3 |

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| **3** | At present, 67% of people are using green energy, the rest using non-renewable energy. An extensive advertising program by the government to encourage people to use green energy is anticipated to have 30% of those presently using non-renewable energy to change over each month. However, it has been found that each month 3% of people change to non-renewable energy sources because they want to save money. Assume that there are no new energy customers. | |
|  | **(a)** | Determine the initial state matrix for this situation. | |
|  | **(b)** | Determine the transition matrix for this situation. | |
|  | **(c)** | Find the percentage of customers using non-renewable energy after 12 months, and show clearly how you have determined this. | |
|  | **(d)** | Determine if/when there will be 80% of people using green energy | |