First Maple HW. Due Feb.2.

1. Let A be the matrix

$$A := \begin{pmatrix} 1 & 2 & 4 \\ 1 & 4 & 16 \\ 1 & 9 & z \end{pmatrix}$$

When is A invertible? Let A_0 be the matrix obtained from A by picking a value of z which makes it noninvertible.

For which values of $u := (u_1, u_2, u_3)$ is the systyem

$$A \cdot x = u$$

solvable? Give all solutions.

2. Let B be the matrix

$$B := \begin{pmatrix} 1 & x & x^2 & x^3 \\ 1 & y & y^2 & y^3 \\ 1 & z & z^2 & z^3 \\ 1 & u & u^2 & u^3 \end{pmatrix}$$

Compute $\det(B)$. When is it zero? Explain!