Dt. ______

Pg. ______

Q2. $\begin{bmatrix} 1 & h & -3 \\ h & 4 & 6 \end{bmatrix}$ — (1)

$\xrightarrow{hR_1 - R_2}$ $\begin{bmatrix} 1 & h & -3 \\ 0 & 4-h^2 & -3h-6 \end{bmatrix}$ — (2)

~~if h = -2~~

Considering (1), if $h = -2$

we get $\begin{bmatrix} 1 & -2 & -3 \\ -2 & 4 & 6 \end{bmatrix}$

$-2R_1 = R_2$

$\xrightarrow{R_2/-2}$ $\begin{bmatrix} 1 & -2 & -3 \\ 1 & -2 & -3 \end{bmatrix}$

Considering (2), if $h = 2$

we get $\begin{bmatrix} 1 & 2 & -3 \\ 0 & 0 & -12 \end{bmatrix}$

(i) exactly one solution when $h \neq 2$ and $h \neq -2$

(ii) no solution when $h = 2$ since REF is inconsistent

(iii) infinitely many solutions when $h = -2$ because $R_1 = R_2$ (after scaling)