Assignment #5

3/1/05-1

PR1 7-2

$100\,1001\,001 = x^9 + x^6 + x^3 + 1$

$1010\,10101 = x^8 + x^6 + x^4 + x^2 + 1$

	Q	R	U	V
−1		$x^9+x^6+x^3+1$	1	0
0		$x^8+x^6+x^4+x^2+1$	0	1
1	x	$x^7+x^6+x^5+x+1$	1	x
2	$x+1$	$x^6+x^5+x^4$	$x+1$	x^2+x+1
3	x	$x+1$	x^2+x+1	x^3+x^2
4	$x^5+x^3+x^2+x+1$	(1)	$x^7+x^6+x^3+x^2+x$	$x^8+x^7+x^6+x+1$

$x^8+x^6+x^4+x^2+1 \,\overline{)\, x^9+x^6+x^3+1}$, quotient x

$$\begin{array}{r} x^9+x^6+x^3+1 \\ x^9+x^7+x^5+x^3 \\ \hline x^7+x^6+x^5+x+1 \end{array}$$

$x^7+x^6+x^5+x+1 \,\overline{)\, x^8+x^6+x^4+x^2+1}$, quotient $x+1$

$$\begin{array}{r} x^8+x^6+x^4+x^2+1 \\ x^8+x^7+x^6+x^2+x \\ \hline x^7+x^4+x+1 \\ x^7+x^6+x^5+x+1 \\ \hline x^6+x^5+x^4 \end{array}$$

$x^6+x^5+x^4 \,\overline{)\, x^7+x^6+x^5+x+1}$, quotient x

$$\begin{array}{r} x^7+x^6+x^5+x+1 \\ x^7+x^6+x^5 \\ \hline x+1 \end{array}$$

HCF = 1

3-1-052

$$
\begin{array}{r|l}
 & x^5+x^3+x^2+x+1 \\
\hline
x+1 & x^6+x^5+x^4 \\
 & x^6+x^5 \\
\hline
 & x^4 \\
 & x^4+x^3 \\
\hline
 & x^3 \\
 & x^3+x^2 \\
\hline
 & x^2 \\
 & x^2+x \\
\hline
 & x \\
 & x+1 \\
\hline
 & 1
\end{array}
$$

$(x+1)+(x^5+x^3+x^2+x+1)(x^2+x+1) = x^7+x^6+x^3+x^2+x$

$(x^2+x+1)+(x^5+x^3+x^2+x+1)(x^3+x^2) = x^8+x^7+x^6+x+1$