

1st bullet ?

12: check if a code word is a valid cyclic code word or not.

$$G(x) = 1 + x^2 + x^3$$

$$R(x) = 1 + x + x^2 + x^3 + x^4 + x^5 + x^6$$

is  $R(x)$  a valid code polynomial?

$R(x)$  remainder is 0 or not?

$$\frac{R(x)}{G(x)} \begin{array}{r} \hline x^3 + x + 1 \end{array}$$

$$\begin{array}{r} x^3 + x^2 + 1 \quad \sqrt{\phantom{x^6 + x^5 + x^4 + x^3 + x^2 + x + 1}} \\ x^6 + x^5 + \phantom{x^4} + x^3 \phantom{+ x^2 + x + 1} \\ \hline \phantom{x^6} + \phantom{x^5} + \phantom{x^4} + \phantom{x^3} + x^2 + x + 1 \end{array}$$

$$\begin{array}{r} x^4 + x^2 + x + 1 \\ x^4 + x^3 + x \\ \hline x^2 + x^2 + 1 \\ x^3 + x^2 + 1 \\ \hline 0 \end{array}$$

Data word:

$$D_3 \ D_2 \ D_1 \ D_0$$

$$\underline{\underline{1 \ 0 \ 1 \ 1}}$$