

$$\begin{aligned}
 & a+b = ab - a^r b^r \Rightarrow a+b = 1 \\
 & a^r + b^r = (a+b)(a+b) - ab \\
 & r_a = (a+b)^2 - ab \\
 & r_a = 1 - ab \\
 & ab = 0 \\
 & ab = 0
 \end{aligned}$$

$$\begin{aligned}
 & (a+b+c)(a^r + b^r + c^r - ab - ac - bc) = a^r + b^r + c^r - abc \\
 & \text{if } a=b=c \Rightarrow a^r + b^r + c^r = abc \\
 & \text{if } a+b+c=0 \Rightarrow a^r + b^r + c^r = abc
 \end{aligned}$$

(a^r+b^r)(x^r+y^r) = (ax+by)^r+(ay-bx)^r مکاری

$$x^r - xn = x(x^{r-1} - n) \quad \text{لکس}$$

$$\begin{aligned}
 & x^r - xn = x(x^{r-1} - n) \\
 & \text{متوازن تریم کارست در سیرین به حاصل منتهی میشود} \\
 & \text{راهنمای تجزیه حنفی} \\
 & \text{استفاده از اتحادها} \\
 & \text{لکس}
 \end{aligned}$$

$$\frac{x^r - 1}{x-1} = \frac{(x^r) - 1}{x-1} = \frac{(x-1)(x^{r-1} + x^{r-2} + \dots + 1)}{x-1} = (x-1)(x^{r-1} + x^{r-2} + \dots + 1)$$

$$\begin{aligned}
 x^r - 1 &= (x^r) - 1 = (x-1)(x^{r-1} + x^{r-2} + \dots + 1) = (x-1)(x^{r-1} + x^{r-2} + \dots + 1) \\
 &\underset{a=n}{\cancel{a}} \underset{b=1}{\cancel{b}} = (a-b)(a^{r-1} + ab + b^{r-1})
 \end{aligned}$$

$$\begin{aligned}
 x^r - 1 &= (x^r) - 1 = (x-1)(x^{r-1} + x^{r-2} + \dots + 1) \\
 &\underset{(x-1)(x^{r-1} + x^{r-2} + \dots + 1)}{\cancel{(x-1)}} \underset{(x^{r-1} + x^{r-2} + \dots + 1)}{\cancel{(x^{r-1} + x^{r-2} + \dots + 1)}} = x^r - 1 \\
 x^r + x^{r-1} + \dots + x^1 - 1 &= x^r + \cancel{x^{r-1} - x^{r-1}} + \dots + \cancel{x^1 - x^1} - 1 = (x^r + 1) - x^r = \\
 &\underset{(x^r + 1) - x^r}{\cancel{(x^r + 1) - x^r}} \underset{(x^r + 1) - x^r}{\cancel{(x^r + 1) - x^r}}
 \end{aligned}$$

$$\begin{aligned}
 x^r + x^{r-1} + \dots + x^1 - 1 &= \cancel{(x^r + 1)} + \cancel{x^{r-1} - x^{r-1}} + \cancel{x^1 - x^1} - 1 = (x^r + 1) - x^r \\
 &= (x^r + 1 - x^r)(x^{r-1} + x^{r-2} + \dots + 1)
 \end{aligned}$$

$$\begin{aligned}
 x^r + x^{r-1} + \dots + x^1 - 1 &= \cancel{(x^r + 1)} + \cancel{x^{r-1} - x^{r-1}} + \cancel{x^1 - x^1} - 1 = (x^r + 1) - x^r \\
 &= (x^r + 1 - x^r)(x^{r-1} + x^{r-2} + \dots + 1)
 \end{aligned}$$

$$\begin{aligned}
 x^r + y^r - z^r - xyz &= \cancel{x^r} - \cancel{xyz} - \cancel{z^r} \\
 &= (x-z)(x+z) \\
 &= (n-y-z)(n-y+z)
 \end{aligned}$$

$$x^r y^r - xy - yz - zx$$

$$\begin{aligned}
 x^r y^r - xy - yz - zx &= \cancel{x^r y^r} - \cancel{xy} - \cancel{yz} - \cancel{zx} \\
 &= (n-y)(n-y-z)
 \end{aligned}$$

$$x^r y^r - xy - yz - zx$$