

Rekurzivni DFT

Pri tem gre za to, da začetni polinom razbijemo na lihi in sodi del vse do konca, nato pa računamo vrednosti polinoma v korenih od spodaj navzgor.

Primer razbijanja na lihi in sodi del:

$$p(x) = 1 + 2x + 3x^2 + 4x^3$$

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VELJA: $p(x) = xp_1(x^2) + p_2(x^2)$

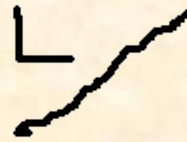
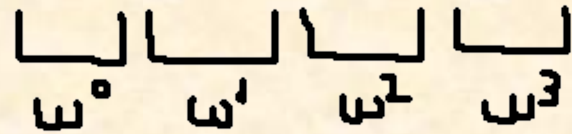
Z rekurzivnim DFT reši polinom $p(x) = 1 + 2x + 3x^2 + 4x^3$

Postopoma bomo risali drevo.

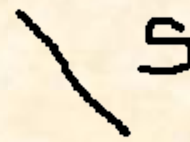
$$p(x) = 1 + 2x + 3x^2 + 4x^3$$

$$\begin{array}{cccc} \text{---} & \text{---} & \text{---} & \text{---} \\ \omega^0 & \omega^1 & \omega^2 & \omega^3 \end{array}$$

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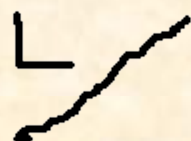
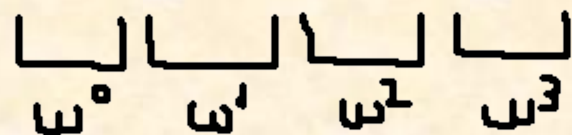


$2+4x$

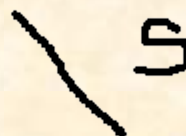


$1+3x$

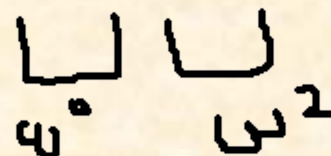
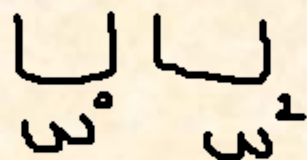
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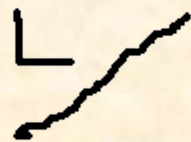
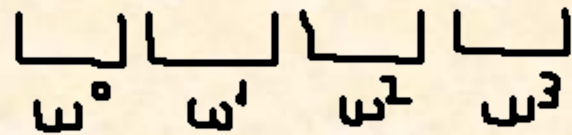
$$2+4x$$



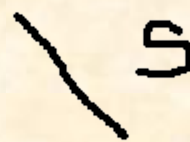
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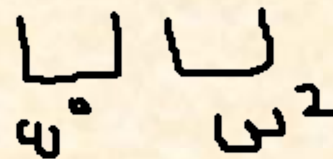
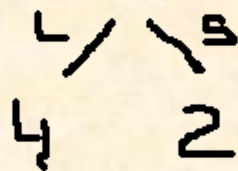
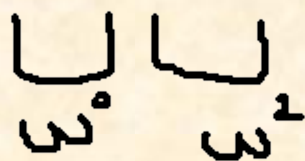
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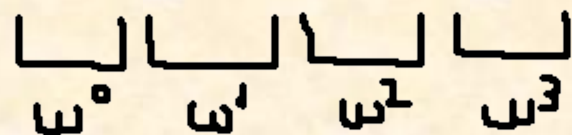
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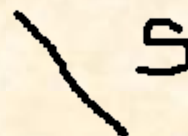
$$1+3x$$



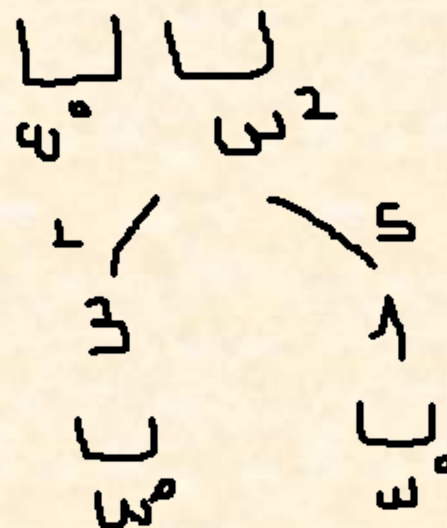
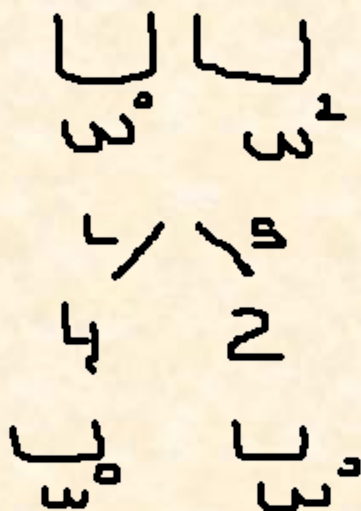
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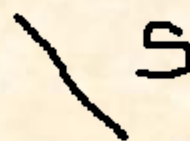
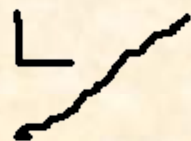
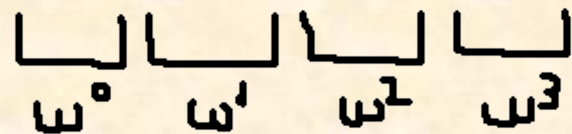
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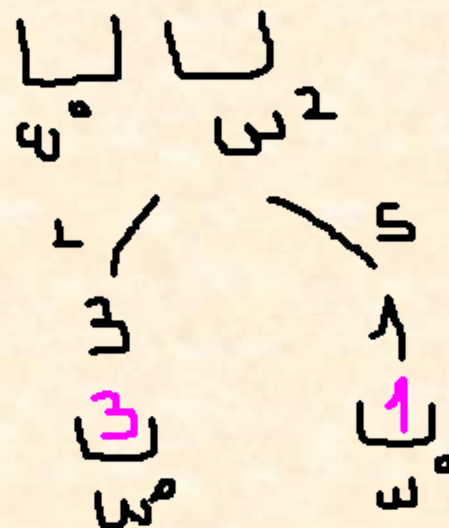
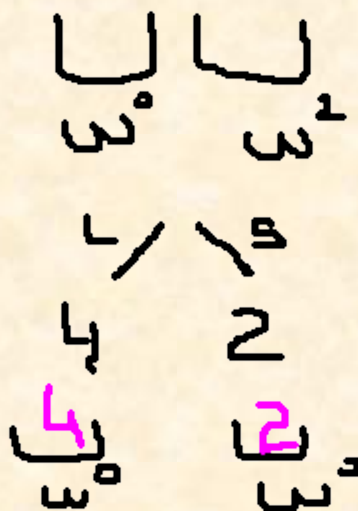


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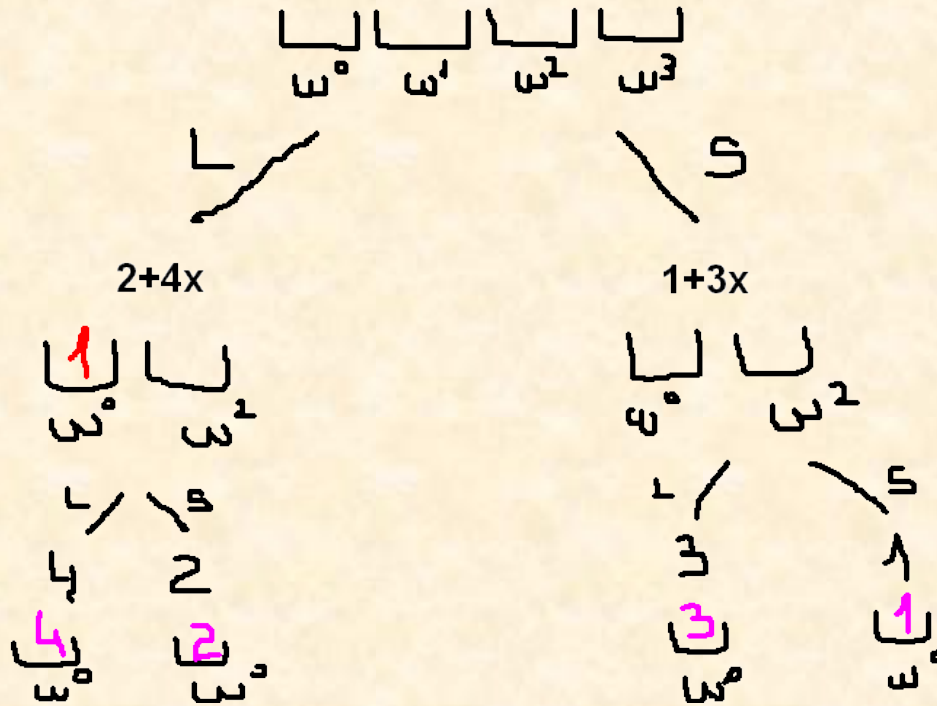
Pri računanju vrednosti bomo uporabili spodnji formuli. Po prvi formuli se računa levo polovico, po drugi formuli pa desno polovico. Glej barve!

$$p(w^k) = w^k p_1(w^{2k}) + p_2(w^{2k})$$

$$p(w^{r+k}) = -w^k p_1(w^{2k}) + p_2(w^{2k})$$

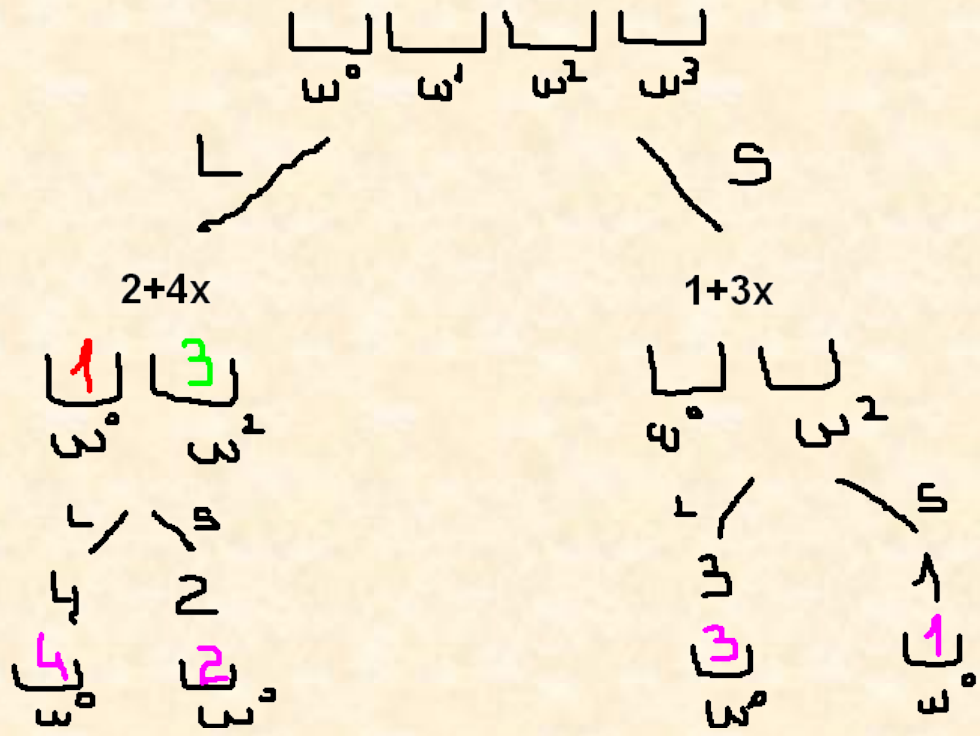
$$r=n/2;$$

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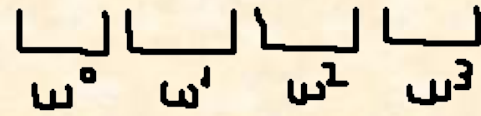
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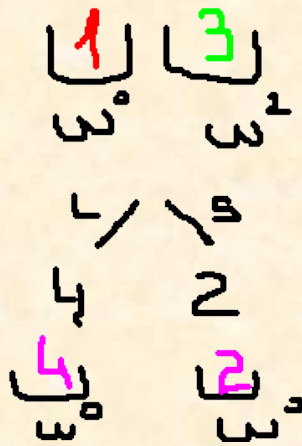


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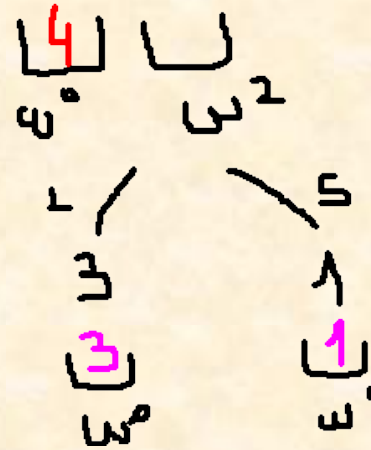
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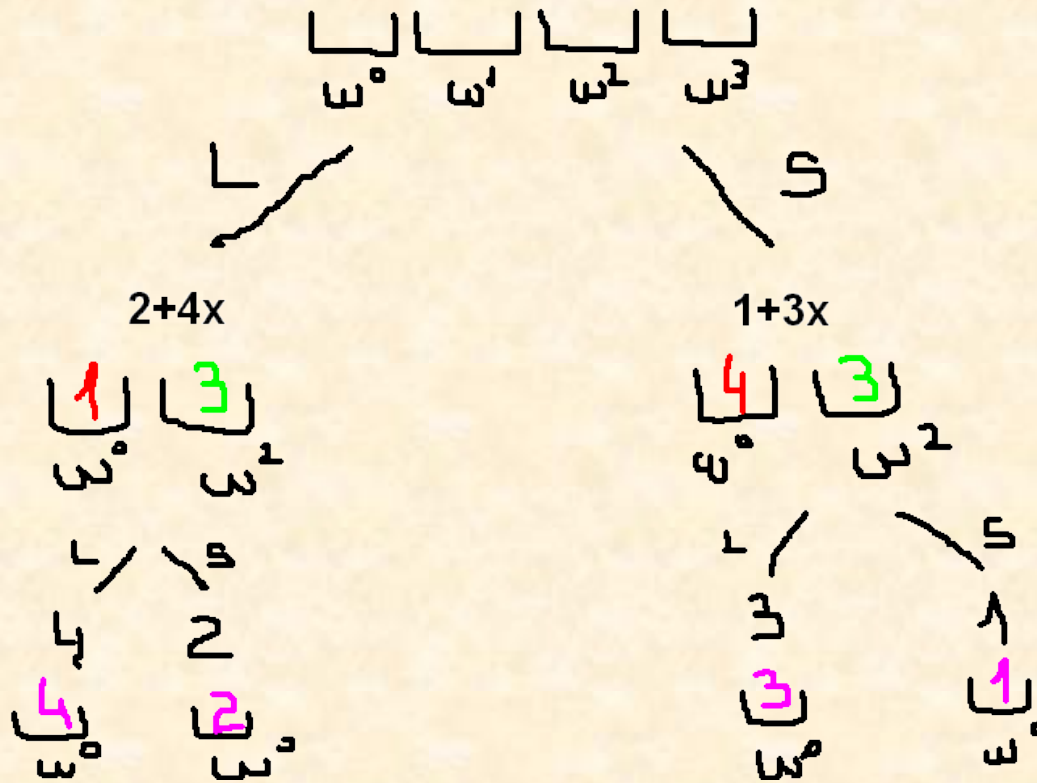
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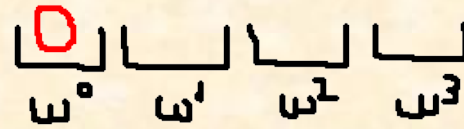
Andrej Grah a.k.a. Burgola

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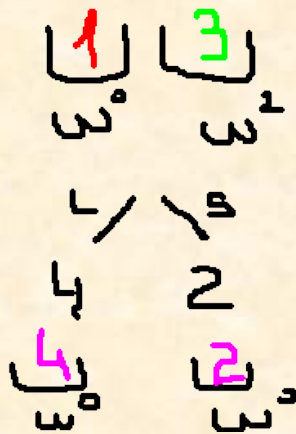
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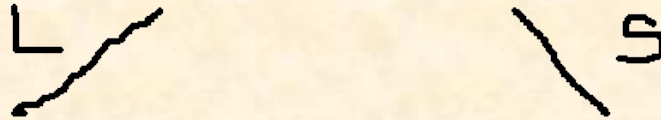
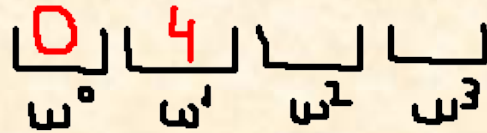
$$2+4x$$

$$1+3x^2$$



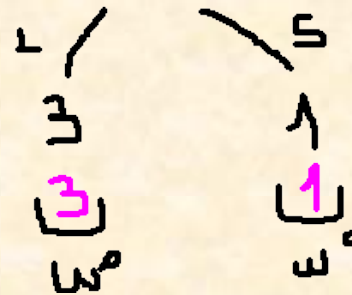
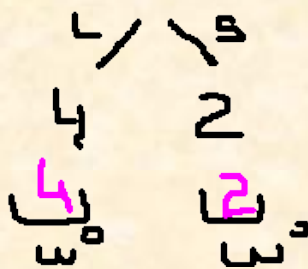
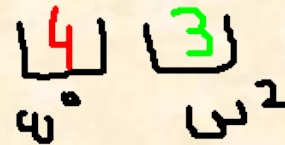
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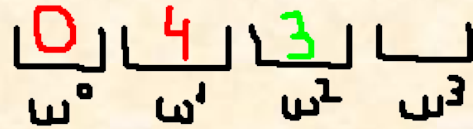
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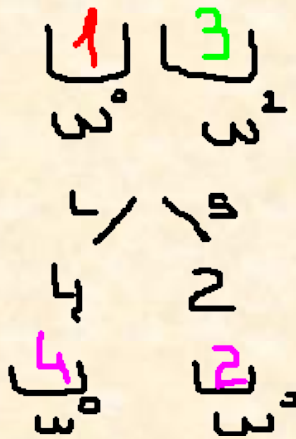
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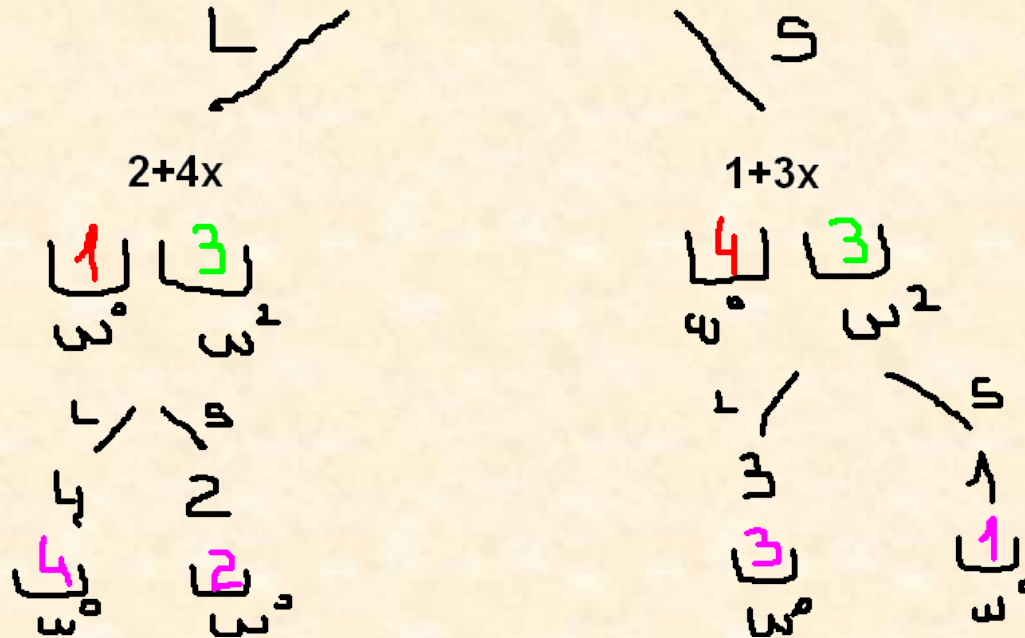
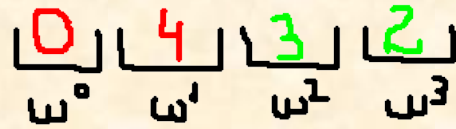
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