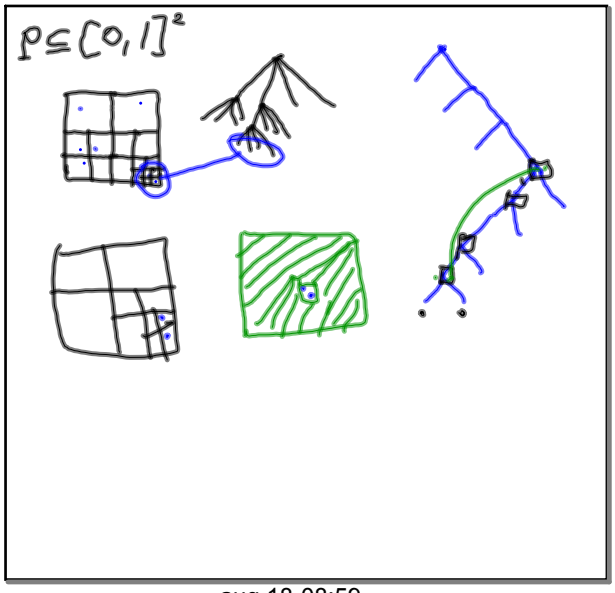

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Spread $(P) = \frac{diam(P)}{cp(P)}$

QT for P: $diam(P) = \frac{1}{2}$

height$(QT(P)) = \log$ spread (P)

$\Rightarrow |QT(P)| = O(n \log \Phi)$.

CQT: $|CQT(P)| = O(n)$.

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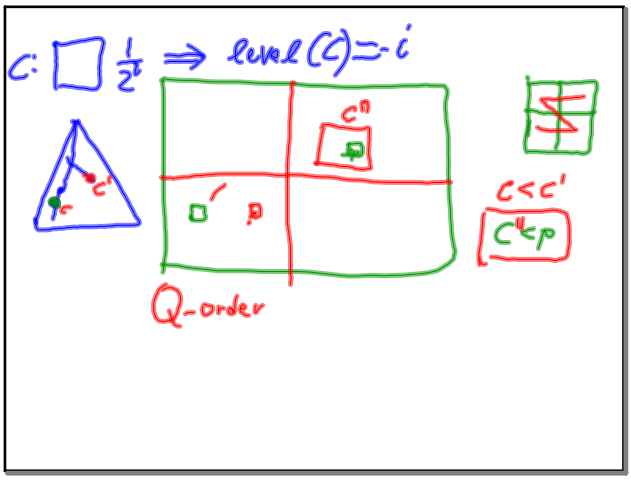

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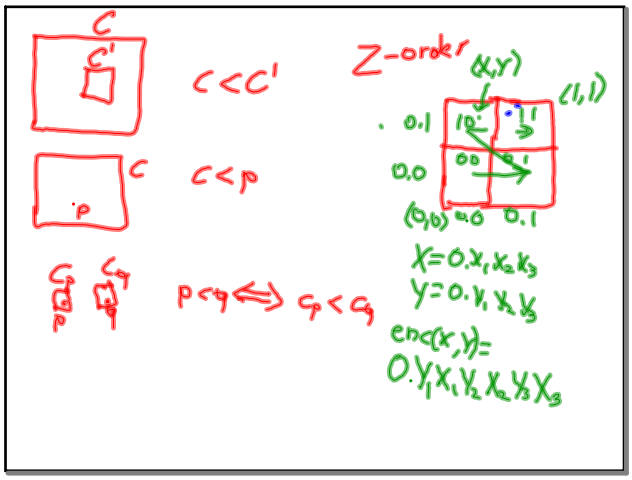

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bit(X,Y) = index of first bit where numbers differ in base 2.

bit$\left(\frac{3}{4}, \frac{7}{8}\right)$ = bit$(0.11, 0.111)$ = 3

P, Q lca(P,Q) – smallest canonical sq containing P and Q

$\ell(\text{lca}(P,Q)) = 1 - \min\left(\text{bit}(x_p, x_q), \text{bit}(y_p, y_q)\right)$

sidelen$(\ell_{ca}) = 2^{\text{level}(\ell_{ca})} = \Delta$

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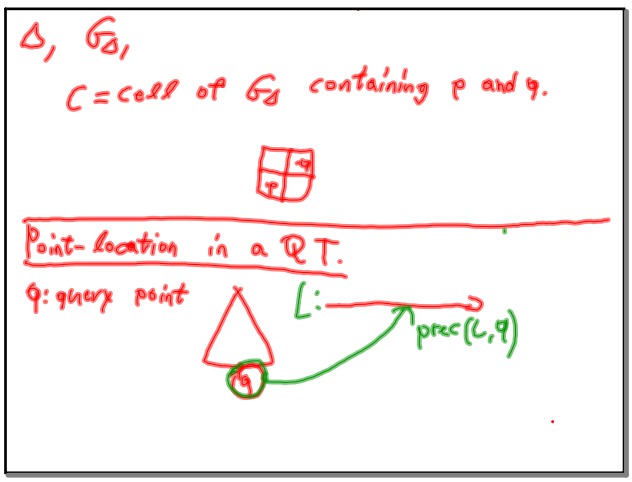

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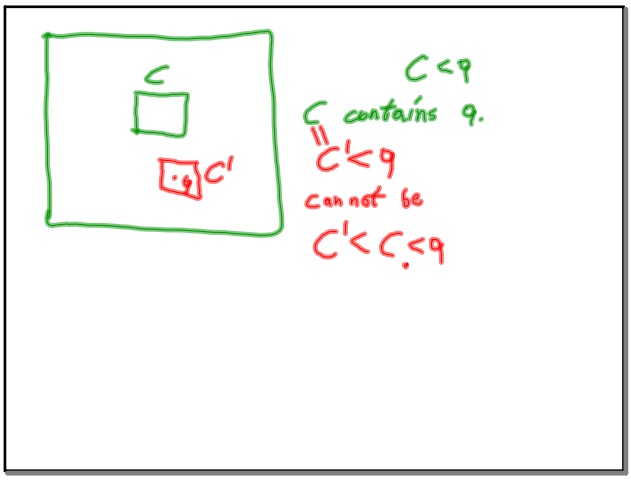

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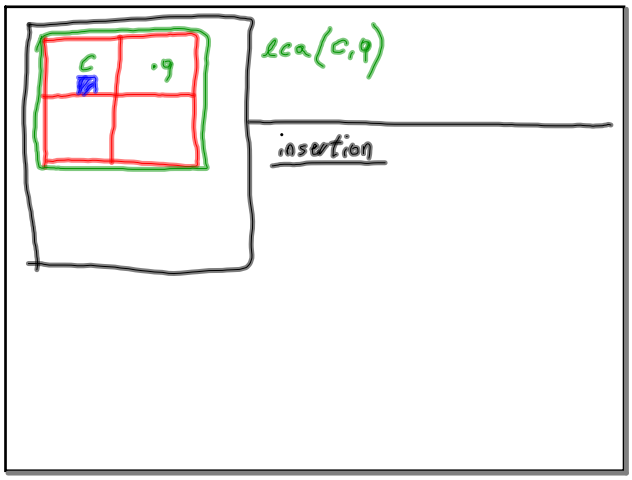

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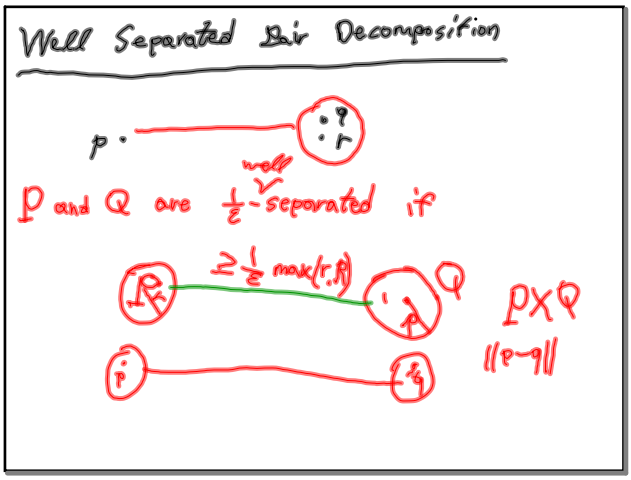

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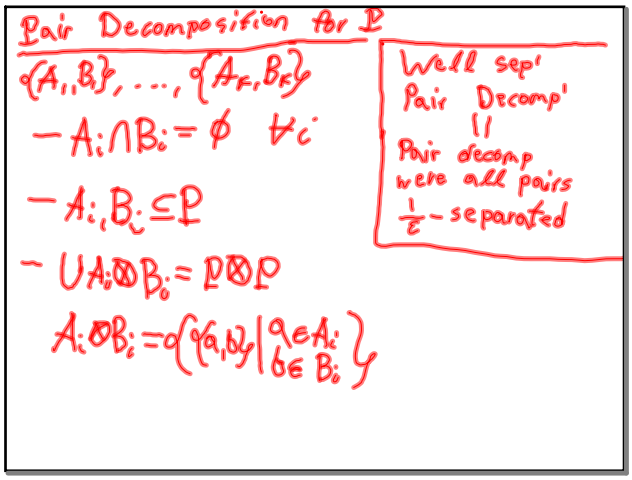

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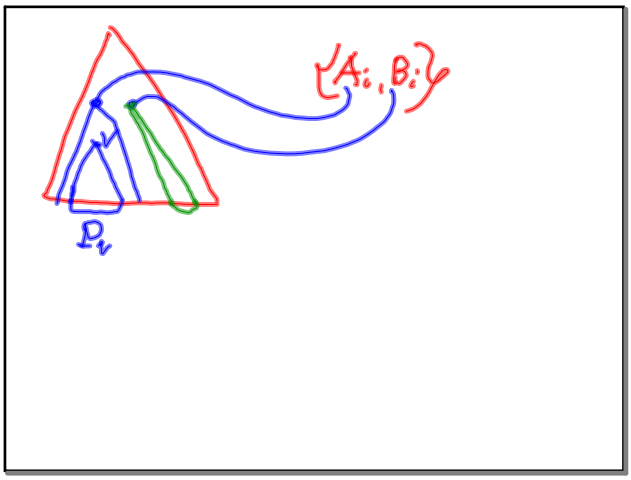

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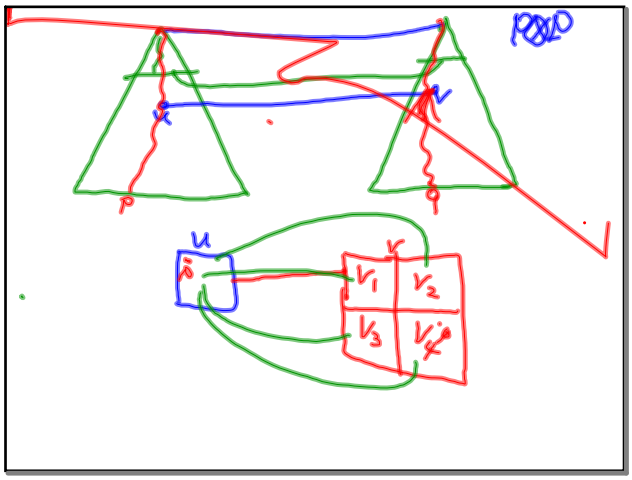

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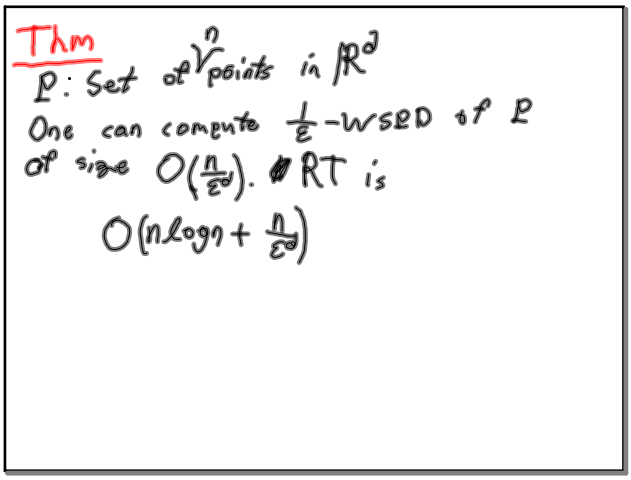

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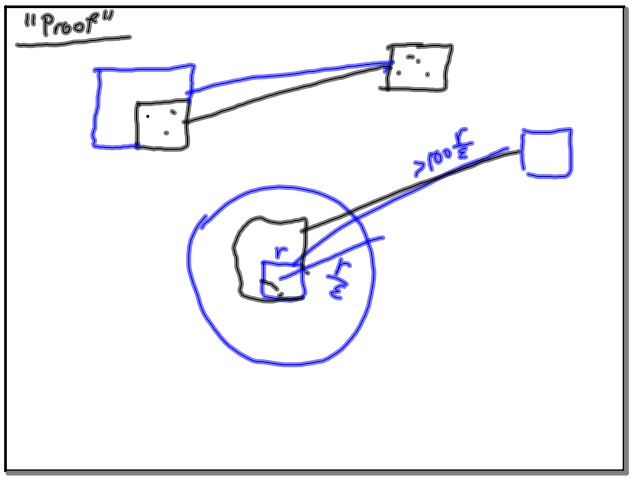

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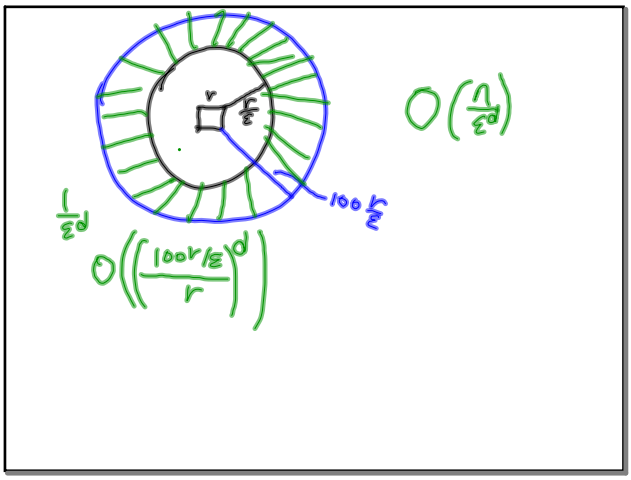

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