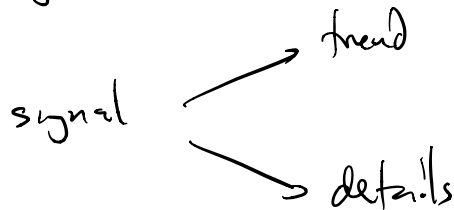


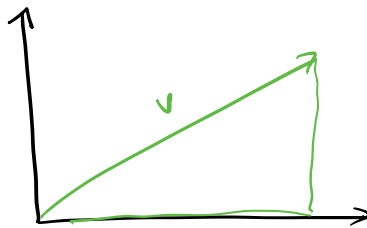
What makes wavelets good?

or why is Haar better than the one from the worksheet?

### Orthogonality

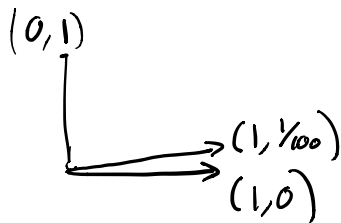


magnitude of signal reflected in magnitudes of trend & detail.



$\mathbb{R}^2$

$$\|v\|^2 = |x|^2 + |y|^2$$



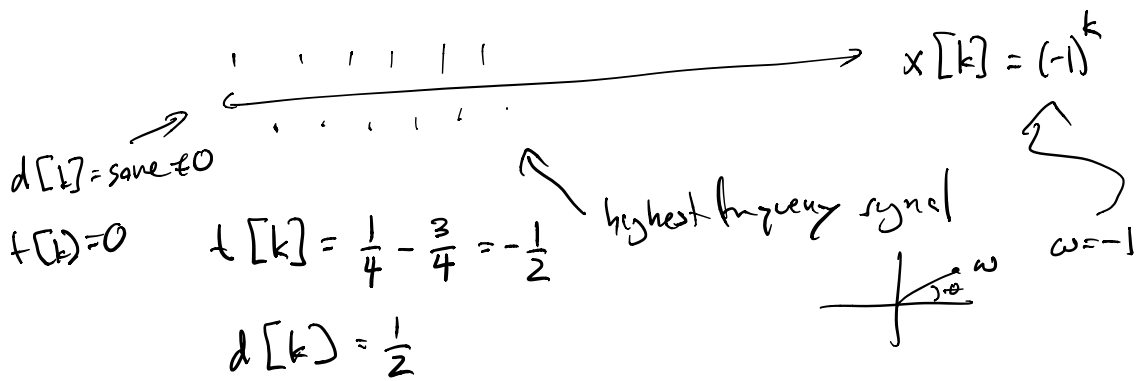
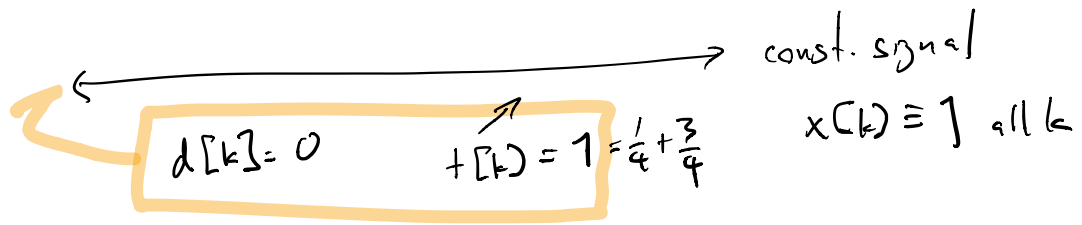
(0,1)

$$\underline{100 \cdot (1, 1/100)} - \underline{100(1,0)}$$

New wavelet:

trend  $t[k] = \frac{1}{4}x[2k] + \frac{3}{4}x[2k+1]$

$$d[k] = \frac{1}{4}x[2k] - \frac{1}{4}x[2k+1]$$



If you are interested in a project (data analysis / learning) instead of exams

submit some (email)  
a plan for project

Rubric for an A = I believe a good faith effort was made to make reasonable progress on project.