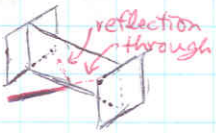
6.885
L21.7
Nov. 29, 2004

## Comparisons to other construction tools

- same characterization for
  - marked ruler
  - Mira reflection tool 

    - even same axioms!
      [Enert, Meeks, Nelson 1994]

- straight edge & compass + trisection tool
  can solve cubic equations $\Leftrightarrow$ all roots are real [Gleason 1988]
  ... but: same regular polygons

## Constructible regular polygons:

$\Leftrightarrow n = 2^k 3^l p_1 p_2 \cdots p_j$ where $p_i = 2^{u_i} 3^{v_i} + 1$ is prime

- excludes 11, 22, 23, 25, 29, 31, 33, 41, ...