Polar Integrals

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Polar coordinates

- The coordinates are r and θ
- Converting to Cartesian and back is done by
  - $x = rcos(\theta) y = rsin(\theta)$
  - $r = sqrt x^2 + y^2 \theta = arctan(\frac{y}{x})$

Integrals in Polar Coordinates

- When doing area integrals we use the definition
  - $dA = rdrd\theta$
- as opposed to
  - $dA = dxdy$
- used in Cartesian coordinates