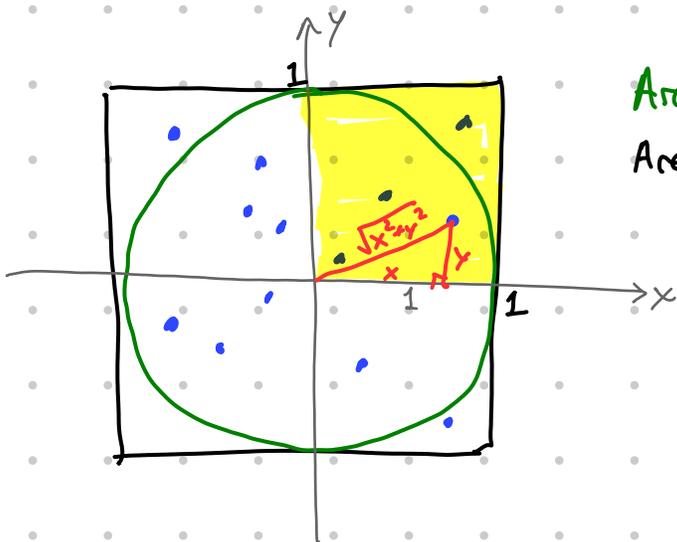


How does the dart board algorithm approximate π ?



Area of circle: π

Area of square: 4

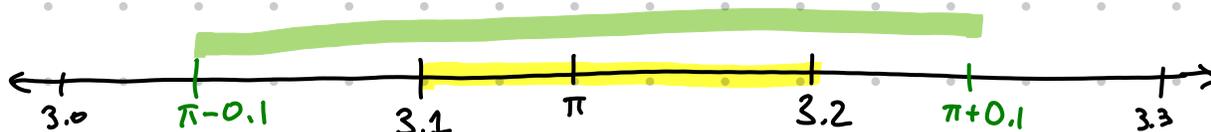
dart: (x, y) $0 \leq x \leq 1, 0 \leq y \leq 1$

check: $\sqrt{x^2 + y^2} \leq 1$

$$x^2 + y^2 \leq 1$$

If we generate M "darts" and p of them are in the circle, then:

$$\frac{p}{M} \approx \frac{\pi}{4} \quad \text{so} \quad \pi \approx \frac{4p}{M}$$



digits start 3.1:

$$3.1 \leq \text{approx} < 3.2$$

within 0.1 of π :

$$\pi - 0.1 < \text{approx} < \pi + 0.1$$