DEPARTMENT OF MATHEMATICS

TECHNICAL REPORT

VARIOUS ESTIMATIONS OF π AS DEMONSTRATIONS OF THE MONTE CARLO METHOD

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π

Ja e McC ea ,
De a e Ma e a c
Te e ee Tec ca, U e ,
C e , e, TN 38505

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A (287-212 BC). A f π

223/71 22/7. H f f

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2.

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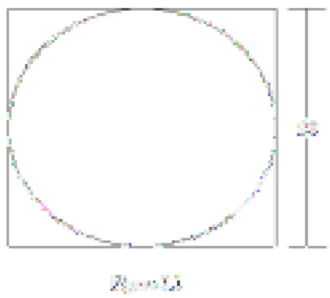
F 3.1.



N , :

$$A_c/A_s = \frac{\pi\theta^2}{4\theta^2}$$

$$\Rightarrow \pi = 4(A_c/A_s)$$

π :

$\pi \approx 4($N /N $)$

3.2. B=30.

3.2

	100	1000	10000	100000	1000000	10000000
E π	3.14	3.144	3.1359	3.14160	3.141690	3.1416010
A	0.01	0.003	0.0001	3.0×10^{-5}	5.0×10^{-6}	2.0×10^{-7}

. A fi

, , π , n I A . :

$$I_n \approx \sqrt{2\pi}$$

, π. :

$$\pi \approx \frac{\left(I_n\right)^2}{2}$$

3.3.

3.3

n	100	1000	10000	100000	1000000	10000000
E π	4.0	3.5	3.15	3.143	3.1398	3.14206
A	2.0	0.2	0.02	0.002	0.0002	$2.0 \times 10^{-}$