Calculation of π by Monte-Carlo algorithm

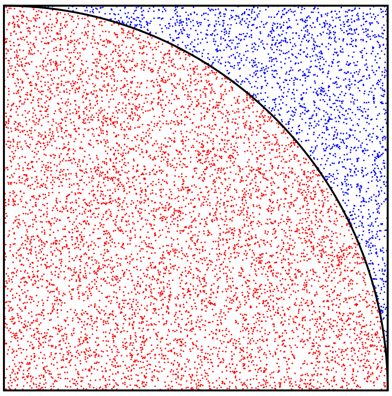
$n = 10000$

$x = \mathbf{random}(\mathbf{fill}(\mathbf{vector}_{\mathrm{hp}}(n);\ 1)) = \mathbf{random}(\mathbf{fill}(\mathbf{vector}_{\mathrm{hp}}(10000);\ 1)) = [0.9882515\ \ 0.6982182\ \ 0.03760643$
$0.1857159\ \ 0.4567316\ \ 0.7827297\ \ 0.04639334\ \ 0.2158546\ \ 0.183602\ \ 0.6674352\ \ 0.9997863\ \ 0.5006415\ \ 0.2710936$
$0.436829\ \ 0.2343034\ \ 0.4045\ \ 0.1483605\ \ 0.7862917\ \ 0.2631828\ \ 0.2915469\ \ \ldots\ \ 0.8075436]$

$y = \mathbf{random}(\mathbf{fill}(\mathbf{Vector}_{\mathrm{hp}}(n);\ 1)) = \mathbf{random}(\mathbf{fill}(\mathbf{Vector}_{\mathrm{hp}}(10000);\ 1)) = [0.9710967\ \ 0.521226\ \ 0.1175385$
$0.6798183\ \ 0.7955947\ \ 0.569588\ \ 0.5397672\ \ 0.3323671\ \ 0.6885513\ \ 0.3370292\ \ 0.4228953\ \ 0.2619703\ \ 0.6453309$
$0.1049927\ \ 0.9271668\ \ 0.9881129\ \ 0.5417095\ \ 0.6491377\ \ 0.958092\ \ 0.2898161\ \ \ldots\ \ 0.7519289]$

$r = \sqrt{x^{\odot 2} + y^{\odot 2}} = [1.385522\ \ 0.8713124\ \ 0.123408\ \ 0.7047293\ \ 0.9173738\ \ 0.9680373\ \ 0.5417573\ \ 0.3963094$
$0.7126097\ \ 0.7477021\ \ 1.085547\ \ 0.5650402\ \ 0.6999597\ \ 0.4492694\ \ 0.956314\ \ 1.067702\ \ 0.5616582\ \ 1.019625$
$0.9935821\ \ 0.4110875\ \ \ldots\ \ 1.103415]$

$n_{\mathrm{in}} = \mathbf{count}(\mathbf{floor}(r);\ 0;\ 1) = 7922$, $PI = \dfrac{4 \cdot n_{\mathrm{in}}}{n} = \dfrac{4 \cdot 7922}{10000} = 3.1688$



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