

$$\int_0^1 \frac{1}{1+x^3} dx = \frac{1}{3} \ln 2 + \frac{\sqrt{3}}{9} \pi \approx 0.8356488483$$

N	Rectangular Rule	Trapezoidal Rule
4	0.7692002443	0.8317002443
10	0.8100227559	0.8350227559
100	0.8331425982	0.8356425982
1000	0.8353987858	0.8356487858

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N	Rectangular Rule	Trapezoidal Rule	Simpson's Rule
4	0.7692002443	0.8317002443	0.8357855108
10	0.8100227559	0.8350227559	0.8356531944
100	0.8331425982	0.8356425982	0.8356488486
1000	0.8353987858	0.8356487858	0.83564884826