Индивидуальное задание.

Провести замену переменных в определенном интеграле, представить результат в виде двух уравнений, по образцу:

$$\int_1^4 \frac{dx}{\sqrt{x}\,(\sqrt{x}+1)} = \int_1^2 \frac{2\,dy}{y+1} \;\; \int_1^2 \frac{2\,dy}{y+1} = 2(\ln 3 - \ln 2)$$

(с точностью до перестановки слагаемых и сомножителей)

Вариант 1

$$\int_0^{\frac{\pi}{3}} \left(3\tan^2(x)+3\right)\tan^2(x)\,dx$$

замена $y = \tan(x)$

Вариант 2

$$\int_2^3 e^{\sin(x)}\cos(x)\,dx$$

замена $y = \sin(x)$

Вариант 3

$$\int_{\log\left(\frac{\sqrt{3}}{3}\right)}^{\log\left(\sqrt{3}\right)} \frac{e^x}{e^{2x}+1}\,dx$$

замена $y = e^x$

Вариант 4

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^6\cos\left(x^7\right)dx$$

замена $y = x^7$

Вариант 5

$$\int_1^4 \left(-e^{\cos(x)}\sin(x)\right)\,dx$$

замена $y = \cos(x)$

Вариант 6

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} \left(-7x^6\sin\left(x^7\right)\right)\,dx$$

замена $y = x^7$

Вариант 7

$$\int_0^{\frac{\pi}{3}} \left(7\tan^2(x)+7\right)\tan^6(x)\,dx$$

замена $y = \tan(x)$

Вариант 8

$$\int_{\log\left(\frac{\pi}{4}\right)}^{\log\left(\frac{\pi}{3}\right)} \left(\tan^2\left(e^x\right) + 1\right) e^x \, dx$$

замена $y = e^x$

Вариант 9

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4 \cos\left(x^5\right) dx$$

замена $y = x^5$

Вариант 10

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^6 \left(\tan^2\left(x^7\right) + 1\right) \, dx$$

замена $y = x^7$

Вариант 11

$$\int_{0}^{\sqrt{3}} \frac{9\,\mathrm{atan}^8\left(x\right)}{x^2+1} \, dx$$

замена $y = \mathrm{atan}\left(x\right)$

Вариант 12

$$\int_{0}^{\tan(1)} \frac{e^{\mathrm{atan}\left(x\right)}}{x^2+1} \, dx$$

замена $y = \mathrm{atan}\left(x\right)$

Вариант 13

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2 \left(\tan^2\left(x^3\right) + 1\right) \, dx$$

замена $y = x^3$

Вариант 14

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{3}\right)} e^x \cos\left(e^x\right) dx$$

замена $y = e^x$

Вариант 15

$$\int\limits_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} \left(-9x^8 \sin\left(x^9\right)\right)\, dx$$

замена $y = x^9$

Вариант 16

$$\int\limits_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} \left(-3x^2 \sin\left(x^3\right)\right)\, dx$$

замена $y = x^3$

Вариант 17

$$\int\limits_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4 \left(\tan^2\left(x^5\right) + 1\right)\, dx$$

замена $y = x^5$

Вариант 18

$$\int\limits_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} 9x^8 \cos\left(x^9\right) dx$$

замена $y = x^9$

Вариант 19

$$\int\limits_{\frac{\pi}{6}}^{\frac{\pi}{4}} \left(-\frac{\sin(x)}{\cos(x)}\right)\, dx$$

замена $y = \cos(x)$

Вариант 20

$$\int\limits_{0}^{\sqrt{3}} \frac{5\,\mathrm{atan}^4(x)}{x^2+1}\, dx$$

замена $y = \mathrm{atan}(x)$

Вариант 21

$$\int\limits_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\cos(x)}{\sin(x)}\, dx$$

замена $y = \sin(x)$

Вариант 22

$$\int\limits_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{4}\right)} \left(-e^x \sin\left(e^x\right)\right)\, dx$$

замена $y = e^x$

Вариант 23

$$\int_{\frac{\pi}{4}}^{\frac{\pi}{3}} \left(\tan^2(x) + 1\right) e^{\tan(x)}\, dx$$

замена $y = \tan(x)$

Вариант 24

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} \left(-5x^4 \sin\left(x^5\right)\right)\, dx$$

замена $y = x^5$

Вариант 25

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2 \cos\left(x^3\right) dx$$

замена $y = x^3$

Вариант 26

$$\int_{0}^{\tan(1)} \frac{e^{\operatorname{atan}(x)}}{x^2 + 1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 27

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{3}\right)} e^x \cos\left(e^x\right) dx$$

замена $y = e^x$

Вариант 28

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^6 \left(\tan^2\left(x^7\right) + 1\right)\, dx$$

замена $y = x^7$

Вариант 29

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} \left(-5x^4 \sin\left(x^5\right)\right)\, dx$$

замена $y = x^5$

Вариант 30

$$\int_{0}^{\sqrt{3}} \frac{5\,\mathrm{atan}^{4}\left(x\right)}{x^{2}+1}\,dx$$

замена $y = \mathrm{atan}\left(x\right)$

Вариант 31

$$\int_{2}^{3} e^{\sin\left(x\right)}\cos\left(x\right)\,dx$$

замена $y = \sin\left(x\right)$

Вариант 32

$$\int_{\log\left(\frac{\sqrt{3}}{3}\right)}^{\log\left(\sqrt{3}\right)} \frac{e^{x}}{e^{2x}+1}\,dx$$

замена $y = e^{x}$

Вариант 33

$$\int_{0}^{\frac{\pi}{3}} \left(7\tan^{2}\left(x\right)+7\right)\tan^{6}\left(x\right)\,dx$$

замена $y = \tan\left(x\right)$

Вариант 34

$$\int_{0}^{\sqrt{3}} \frac{9\,\mathrm{atan}^{8}\left(x\right)}{x^{2}+1}\,dx$$

замена $y = \mathrm{atan}\left(x\right)$

Вариант 35

$$\int_{0}^{\frac{\pi}{3}} \left(3\tan^{2}\left(x\right)+3\right)\tan^{2}\left(x\right)\,dx$$

замена $y = \tan\left(x\right)$

Вариант 36

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} \left(-7x^{6}\sin\left(x^{7}\right)\right)\,dx$$

замена $y = x^{7}$

Вариант 37

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} \left(-3x^{2}\sin\left(x^{3}\right)\right)\,dx$$

замена $y = x^{3}$

Вариант 38

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \left(-\frac{\sin(x)}{\cos(x)}\right) dx$$

замена $y = \cos(x)$

Вариант 39

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} 9x^8 \cos\left(x^9\right) dx$$

замена $y = x^9$

Вариант 40

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4 \left(\tan^2\left(x^5\right) + 1\right) dx$$

замена $y = x^5$

Вариант 41

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2 \cos\left(x^3\right) dx$$

замена $y = x^3$

Вариант 42

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} \left(-9x^8 \sin\left(x^9\right)\right) dx$$

замена $y = x^9$

Вариант 43

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{4}\right)} \left(-e^x \sin\left(e^x\right)\right) dx$$

замена $y = e^x$

Вариант 44

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4 \cos\left(x^5\right) dx$$

замена $y = x^5$

Вариант 45

$$\int\limits_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^6\cos\left(x^7\right)dx$$

замена $y = x^7$

Вариант 46

$$\int\limits_{\log\left(\frac{\pi}{4}\right)}^{\log\left(\frac{\pi}{3}\right)} \left(\tan^2\left(e^x\right)+1\right)e^x\,dx$$

замена $y = e^x$

Вариант 47

$$\int\limits_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\cos\left(x\right)}{\sin\left(x\right)}\,dx$$

замена $y = \sin\left(x\right)$

Вариант 48

$$\int\limits_{1}^{4} \left(-e^{\cos\left(x\right)}\sin\left(x\right)\right)\,dx$$

замена $y = \cos\left(x\right)$

Вариант 49

$$\int\limits_{\frac{\pi}{4}}^{\frac{\pi}{3}} \left(\tan^2\left(x\right)+1\right)e^{\tan\left(x\right)}\,dx$$

замена $y = \tan\left(x\right)$

Вариант 50

$$\int\limits_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2\left(\tan^2\left(x^3\right)+1\right)\,dx$$

замена $y = x^3$

Вариант 51

$$\int\limits_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^6\cos\left(x^7\right)dx$$

замена $y = x^7$

Вариант 52

$$\int\limits_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} \left(-5x^4\sin\left(x^5\right)\right)\,dx$$

замена $y = x^5$

Вариант 53

$$\int_0^{\sqrt{3}} \frac{9 \operatorname{atan}^8(x)}{x^2+1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 54

$$\int_{\log\left(\frac{\sqrt{3}}{3}\right)}^{\log\left(\sqrt{3}\right)} \frac{e^x}{e^{2x}+1}\, dx$$

замена $y = e^x$

Вариант 55

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2 \left(\tan^2\left(x^3\right)+1\right)\, dx$$

замена $y = x^3$

Вариант 56

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{4}\right)} \left(-e^x \sin\left(e^x\right)\right)\, dx$$

замена $y = e^x$

Вариант 57

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} \left(-9x^8 \sin\left(x^9\right)\right)\, dx$$

замена $y = x^9$

Вариант 58

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{3}\right)} e^x \cos\left(e^x\right) dx$$

замена $y = e^x$

Вариант 59

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} 9x^8 \cos\left(x^9\right) dx$$

замена $y = x^9$

Вариант 60

$$\int_0^{\sqrt{3}} \frac{5\,\mathrm{atan}^4\left(x\right)}{x^2+1}\,dx$$

замена $y = \mathrm{atan}\left(x\right)$

Вариант 61

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} \left(-3x^2\sin\left(x^3\right)\right)\,dx$$

замена $y = x^3$

Вариант 62

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} \left(-7x^6\sin\left(x^7\right)\right)\,dx$$

замена $y = x^7$

Вариант 63

$$\int_0^{\frac{\pi}{3}} \left(7\tan^2\left(x\right)+7\right)\tan^6\left(x\right)dx$$

замена $y = \tan\left(x\right)$

Вариант 64

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2\cos\left(x^3\right)dx$$

замена $y = x^3$

Вариант 65

$$\int_0^{\frac{\pi}{3}} \left(3\tan^2\left(x\right)+3\right)\tan^2\left(x\right)dx$$

замена $y = \tan\left(x\right)$

Вариант 66

$$\int_{\frac{\pi}{4}}^{\frac{\pi}{3}} \left(\tan^2\left(x\right)+1\right)e^{\tan\left(x\right)}\,dx$$

замена $y = \tan\left(x\right)$

Вариант 67

$$\int_0^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4\cos\left(x^5\right)dx$$

замена $y = x^5$

Вариант 68

$$\int_{1}^{4} \left(-e^{\cos(x)} \sin(x)\right)\, dx$$

замена $y = \cos(x)$

Вариант 69

$$\int_{2}^{3} e^{\sin(x)} \cos(x)\, dx$$

замена $y = \sin(x)$

Вариант 70

$$\int_{6^{\frac{6}{7}}\sqrt[7]{\pi}}^{2^{\frac{5}{7}}\sqrt[7]{\pi}} 7x^6 \left(\tan^2\left(x^7\right) + 1\right)\, dx$$

замена $y = x^7$

Вариант 71

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \left(-\frac{\sin(x)}{\cos(x)}\right)\, dx$$

замена $y = \cos(x)$

Вариант 72

$$\int_{\log\left(\frac{\pi}{4}\right)}^{\log\left(\frac{\pi}{3}\right)} \left(\tan^2\left(e^x\right) + 1\right) e^x\, dx$$

замена $y = e^x$

Вариант 73

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\cos(x)}{\sin(x)}\, dx$$

замена $y = \sin(x)$

Вариант 74

$$\int_{0}^{\tan(1)} \frac{e^{\operatorname{atan}(x)}}{x^2 + 1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 75

$$\int_{0}^{3^{\frac{4}{5}}\sqrt[5]{\pi}} 5x^4 \left(\tan^2\left(x^5\right) + 1\right)\, dx$$

замена $y = x^5$

Вариант 76

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} 9x^8 \cos\left(x^9\right) dx$$

замена $y = x^9$

Вариант 77

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^6 \left(\tan^2\left(x^7\right) + 1\right)\, dx$$

замена $y = x^7$

Вариант 78

$$\int_{\log\left(\frac{\pi}{4}\right)}^{\log\left(\frac{\pi}{3}\right)} \left(\tan^2\left(e^x\right) + 1\right) e^x\, dx$$

замена $y = e^x$

Вариант 79

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{4}\right)} \left(-e^x \sin\left(e^x\right)\right)\, dx$$

замена $y = e^x$

Вариант 80

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2 \cos\left(x^3\right) dx$$

замена $y = x^3$

Вариант 81

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^6 \cos\left(x^7\right) dx$$

замена $y = x^7$

Вариант 82

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} \left(-5x^4 \sin\left(x^5\right)\right)\, dx$$

замена $y = x^5$

Вариант 83

$$\int_{1}^{4} \left(-e^{\cos(x)} \sin(x)\right)\, dx$$

замена $y = \cos(x)$

Вариант 84

$$\int_{0}^{\sqrt{3}} \frac{9 \operatorname{atan}^{8}(x)}{x^2 + 1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 85

$$\int_{2}^{3} e^{\sin(x)} \cos(x)\, dx$$

замена $y = \sin(x)$

Вариант 86

$$\int_{0}^{\tan(1)} \frac{e^{\operatorname{atan}(x)}}{x^2 + 1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 87

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \left(-\frac{\sin(x)}{\cos(x)}\right)\, dx$$

замена $y = \cos(x)$

Вариант 88

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\cos(x)}{\sin(x)}\, dx$$

замена $y = \sin(x)$

Вариант 89

$$\int_{0}^{\sqrt{3}} \frac{5 \operatorname{atan}^{4}(x)}{x^2 + 1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 90

$$\int_{0}^{\frac{\pi}{3}} \left(7 \tan^{2}(x) + 7\right) \tan^{6}(x)\, dx$$

замена $y = \tan(x)$

Вариант 91

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4 \cos\left(x^5\right) dx$$

замена $y = x^5$

Вариант 92

$$\int_{\log\left(\frac{\sqrt{3}}{3}\right)}^{\log\left(\sqrt{3}\right)} \frac{e^x}{e^{2x}+1}\, dx$$

замена $y = e^x$

Вариант 93

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4 \left(\tan^2\left(x^5\right)+1\right)\, dx$$

замена $y = x^5$

Вариант 94

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} \left(-7x^6 \sin\left(x^7\right)\right)\, dx$$

замена $y = x^7$

Вариант 95

$$\int_{0}^{\frac{\pi}{3}} \left(3\tan^2(x)+3\right)\tan^2(x)\, dx$$

замена $y = \tan(x)$

Вариант 96

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{3}\right)} e^x \cos\left(e^x\right) dx$$

замена $y = e^x$

Вариант 97

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} \left(-9x^8 \sin\left(x^9\right)\right)\, dx$$

замена $y = x^9$

Вариант 98

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2 \left(\tan^2\left(x^3\right)+1\right)\, dx$$

замена $y = x^3$

Вариант 99

$$\int_{\frac{\pi}{4}}^{\frac{\pi}{3}} \left(\tan^2(x) + 1\right) e^{\tan(x)}\, dx$$

замена $y = \tan(x)$

Вариант 100

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} \left(-3x^2 \sin\left(x^3\right)\right)\, dx$$

замена $y = x^3$

Вариант 101

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^6 \cos\left(x^7\right) dx$$

замена $y = x^7$

Вариант 102

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \left(-\frac{\sin(x)}{\cos(x)}\right)\, dx$$

замена $y = \cos(x)$

Вариант 103

$$\int_{0}^{\sqrt{3}} \frac{9\,\mathrm{atan}^8(x)}{x^2+1}\, dx$$

замена $y = \mathrm{atan}(x)$

Вариант 104

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2 \cos\left(x^3\right) dx$$

замена $y = x^3$

Вариант 105

$$\int_{0}^{\frac{\pi}{3}} \left(7\tan^2(x) + 7\right) \tan^6(x)\, dx$$

замена $y = \tan(x)$

Вариант 106

$$\int_{1}^{4} \left(-e^{\cos(x)} \sin(x)\right)\, dx$$

замена $y = \cos(x)$

Вариант 107

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} \left(-3x^2 \sin\left(x^3\right)\right)\, dx$$

замена $y = x^3$

Вариант 108

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} 9x^8 \cos\left(x^9\right) dx$$

замена $y = x^9$

Вариант 109

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} \left(-7x^6 \sin\left(x^7\right)\right)\, dx$$

замена $y = x^7$

Вариант 110

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{3}\right)} e^x \cos\left(e^x\right) dx$$

замена $y = e^x$

Вариант 111

$$\int_{0}^{\tan(1)} \frac{e^{\operatorname{atan}(x)}}{x^2+1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 112

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} \left(-5x^4 \sin\left(x^5\right)\right)\, dx$$

замена $y = x^5$

Вариант 113

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} \left(-9x^8 \sin\left(x^9\right)\right)\, dx$$

замена $y = x^{9}$

Вариант 114

$$\int\limits_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^{6}\left(\tan^{2}\left(x^{7}\right)+1\right)\,dx$$

замена $y = x^{7}$

Вариант 115

$$\int\limits_{\frac{\pi}{4}}^{\frac{\pi}{3}} \left(\tan^{2}\left(x\right)+1\right)e^{\tan\left(x\right)}\,dx$$

замена $y = \tan\left(x\right)$

Вариант 116

$$\int\limits_{2}^{3} e^{\sin\left(x\right)}\cos\left(x\right)\,dx$$

замена $y = \sin\left(x\right)$

Вариант 117

$$\int\limits_{0}^{\sqrt{3}} \frac{5\,\mathrm{atan}^{4}\left(x\right)}{x^{2}+1}\,dx$$

замена $y = \mathrm{atan}\left(x\right)$

Вариант 118

$$\int\limits_{\log\left(\frac{\pi}{4}\right)}^{\log\left(\frac{\pi}{3}\right)} \left(\tan^{2}\left(e^{x}\right)+1\right)e^{x}\,dx$$

замена $y = e^{x}$

Вариант 119

$$\int\limits_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{4}\right)} \left(-e^{x}\sin\left(e^{x}\right)\right)\,dx$$

замена $y = e^{x}$

Вариант 120

$$\int\limits_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^{2}\left(\tan^{2}\left(x^{3}\right)+1\right)\,dx$$

замена $y = x^{3}$

Вариант 121

$$\int\limits_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^{4}\left(\tan^{2}\left(x^{5}\right)+1\right)\,dx$$

замена $y = x^5$

Вариант 122

$$\int_{0}^{\frac{\pi}{3}} \left(3\tan^2(x) + 3\right)\tan^2(x)\,dx$$

замена $y = \tan(x)$

Вариант 123

$$\int_{\log\left(\frac{\sqrt{3}}{3}\right)}^{\log\left(\sqrt{3}\right)} \frac{e^x}{e^{2x}+1}\,dx$$

замена $y = e^x$

Вариант 124

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4\cos\left(x^5\right)\,dx$$

замена $y = x^5$

Вариант 125

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\cos(x)}{\sin(x)}\,dx$$

замена $y = \sin(x)$

Вариант 126

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} \left(-9x^8\sin\left(x^9\right)\right)\,dx$$

замена $y = x^9$

Вариант 127

$$\int_{\log\left(\frac{\pi}{4}\right)}^{\log\left(\frac{\pi}{3}\right)} \left(\tan^2\left(e^x\right)+1\right)e^x\,dx$$

замена $y = e^x$

Вариант 128

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} \left(-3x^2\sin\left(x^3\right)\right)\,dx$$

замена $y = x^3$

Вариант 129

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2\left(\tan^2\left(x^3\right)+1\right)\,dx$$

замена $y = x^3$

Вариант 130

$$\int_0^{\frac{\pi}{3}} \left(7\tan^2(x)+7\right)\tan^6(x)\,dx$$

замена $y = \tan(x)$

Вариант 131

$$\int_{\frac{6^{\frac{2}{3}}\sqrt[3]{\pi}}{6}}^{\frac{3^{\frac{2}{3}}\sqrt[3]{\pi}}{3}} 3x^2\cos\left(x^3\right)dx$$

замена $y = x^3$

Вариант 132

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{3}\right)} e^x\cos\left(e^x\right)dx$$

замена $y = e^x$

Вариант 133

$$\int_0^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^4\cos\left(x^5\right)dx$$

замена $y = x^5$

Вариант 134

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{4}} \left(-\frac{\sin(x)}{\cos(x)}\right)\,dx$$

замена $y = \cos(x)$

Вариант 135

$$\int_0^{\sqrt{3}} \frac{5\,\mathrm{atan}^4(x)}{x^2+1}\,dx$$

замена $y = \mathrm{atan}(x)$

Вариант 136

$$\int_{\log\left(\frac{\pi}{6}\right)}^{\log\left(\frac{\pi}{4}\right)} \left(-e^x\sin\left(e^x\right)\right)\,dx$$

замена $y = e^{x}$

Вариант 137

$$\int_{0}^{\sqrt{3}} \frac{9 \operatorname{atan}^{8}(x)}{x^{2}+1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 138

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} 5x^{4}\left(\tan^{2}\left(x^{5}\right)+1\right)\, dx$$

замена $y = x^{5}$

Вариант 139

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^{6}\left(\tan^{2}\left(x^{7}\right)+1\right)\, dx$$

замена $y = x^{7}$

Вариант 140

$$\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} \frac{\cos(x)}{\sin(x)}\, dx$$

замена $y = \sin(x)$

Вариант 141

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} 7x^{6}\cos\left(x^{7}\right)\, dx$$

замена $y = x^{7}$

Вариант 142

$$\int_{0}^{\frac{\pi}{3}} \left(3\tan^{2}(x)+3\right)\tan^{2}(x)\, dx$$

замена $y = \tan(x)$

Вариант 143

$$\int_{1}^{4} \left(-e^{\cos(x)}\sin(x)\right)\, dx$$

замена $y = \cos(x)$

Вариант 144

$$\int_{\frac{3^{\frac{8}{9}}\sqrt[9]{\pi}}{3}}^{\frac{2^{\frac{8}{9}}\sqrt[9]{\pi}}{2}} 9x^8 \cos\left(x^9\right) dx$$

замена $y = x^9$

Вариант 145

$$\int_{2}^{3} e^{\sin(x)} \cos(x)\, dx$$

замена $y = \sin(x)$

Вариант 146

$$\int_{\frac{\pi}{4}}^{\frac{\pi}{3}} \left(\tan^2(x) + 1\right) e^{\tan(x)}\, dx$$

замена $y = \tan(x)$

Вариант 147

$$\int_{\frac{6^{\frac{6}{7}}\sqrt[7]{\pi}}{6}}^{\frac{2^{\frac{5}{7}}\sqrt[7]{\pi}}{2}} \left(-7x^6 \sin\left(x^7\right)\right)\, dx$$

замена $y = x^7$

Вариант 148

$$\int_{\log\left(\frac{\sqrt{3}}{3}\right)}^{\log\left(\sqrt{3}\right)} \frac{e^x}{e^{2x}+1}\, dx$$

замена $y = e^x$

Вариант 149

$$\int_{0}^{\tan(1)} \frac{e^{\operatorname{atan}(x)}}{x^2+1}\, dx$$

замена $y = \operatorname{atan}(x)$

Вариант 150

$$\int_{0}^{\frac{3^{\frac{4}{5}}\sqrt[5]{\pi}}{3}} \left(-5x^4 \sin\left(x^5\right)\right)\, dx$$

замена $y = x^5$