

START

END π

$$\log_5 \sqrt[4]{25} = x$$

$$5^{\frac{2}{4}} = 5^x$$

$$x = \frac{1}{2}$$

$$49^{x+4} = 7^{18-x}$$

$$7^{2(x+4)} = 7^{18-x}$$

$$2x+8 = 18-x$$

$$3x = 10$$

$$x = \frac{10}{3}$$

$$32^{x-1} = \left(\frac{1}{4}\right)^{x+5}$$

$$(2^5)^{x-1} = (2^{-2})^{x+5}$$

$$5x-5 = -2x-10$$

$$7x = -5$$

$$x = -\frac{5}{7}$$

1/2

2

10/3

-5/7

-2

$$50 \log_5 \sqrt{125} = x$$

$$\log_5 5^{\frac{3}{2}} = \frac{x}{50}$$

$$5^{\frac{x}{50}} = 5^{\frac{3}{2}}$$

$$\frac{x}{50} = \frac{3}{2}$$

$$2x = 150$$

$$x = 75$$

$$36 \ln e^{0.5} - 4 \ln e^5 = x$$

$$\ln e^{18} - \ln e^{20} = x$$

$$\ln e^{-2} = x$$

$$x = -2$$

$$2 + 3 \log_3 x = 5$$

$$\log_3 3x = 1$$

$$3x = 10$$

$$x = \frac{10}{3}$$

75

1

3/100

2

10/3

$$\log_{12}(x+1) + \log_{12} x = 1$$

$$\log_{12} x^2 + x = 1$$

$$x^2 + x = 12$$

$$x^2 + x - 12 = 0$$

$$(x-3)(x+4) = 0$$

$$x = 3$$

$$\log_5 x = \log_5(x+12) - \log_5 4$$

$$\log_5 x = \log_5 \frac{x+12}{4}$$

$$x = \frac{x+12}{4}$$

$$4x = x+12$$

$$3x = 12$$

$$x = 4$$

$$\log_8(x^2+11) = \log_8 92$$

$$x^2+11 = 92$$

$$x^2 = 81$$

$$x = \pm 9$$

4

9

3

12

9, -9

$$\log(x+6) = \log 8x - \log(3x+2)$$

$$\log(x+6) = \log \frac{8x}{3x+2}$$

$$\frac{x+6}{1} = \frac{8x}{3x+2}$$

$$8x = 3x^2 + 20x + 12$$

$$0 = 3x^2 + 12x + 12$$

$$0 = 3(x^2 + 4x + 4)$$

$$0 = 3(x+2)(x+2)$$

$$x = -2$$

$$4^{x+7} = 8^{x+3}$$

$$(2^2)^{x+7} = (2^3)^{x+3}$$

$$2x+14 = 3x+9$$

$$5 = x$$

$$\log_3 x + \log_3(x+3) = \log_3 4$$

$$\log_3 x(x+3) = \log_3 4$$

$$x^2 + 3x = 4$$

$$x^2 + 3x - 4 = 0$$

$$(x+4)(x-1) = 0$$

$$x = -4 \text{ or } 1$$

4

1

END

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