

Sec 4.2.3

Properties of Common and Natural Logs

1. $\log_b 1 = 0$

2. $\log_b b = 1$

3. $\log_b b^x = x$

* the same properties hold true for any base, including base e, natural logs... ln.

4. ~~$b^{\log b^x} = x$~~

~~$\log b^x = x$~~

5. $\log 1 = 0$

6. $\log 10 = 1$

7. $\log 10^x = x$

8. ~~$10^{\log x} = x$~~

~~$10^{\log x} = x$~~

Today...

Evaluate/simplify without a calculator.

$$\log 10 = 1 \leftarrow$$

$$\log 10^3 = 3 \leftarrow$$

$$\ln 1 = 0$$

$$\ln e = 1$$

$$\ln 1/e^9$$

$$\cancel{10^{\log 42}} = 42$$

$$\cancel{e^{\ln 3x^2}} = 3x^2$$

$$\ln \frac{1}{e^9} =$$

$$\ln e^{-9} = -9$$

Suggested Practice

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75-80

*utilize the graphing calculator

81-99

odds

Domains

75. $(-4, \infty)$

76. $(-6, \infty)$

77. $(-\infty, 2)$

78. $(-\infty, 7)$

79. $(-\infty, 2) \cup (2, \infty)$

Simplify
80. $(-\infty, 7) \cup (7, \infty)$

81. 2

83. 7

85. 33

87. 0

89. 6

91. -6

93. 125

95. $9x$

97. $5x^2$

99. \sqrt{x}