Logs (Solving)

UNIT 8 LESSON ____ INVESTIGATION ____ NOTES

Lesson Vocabulary

Solve Exponentials

1. Write the exponential in logarithmic Form.
2. Use COB to solve

Solve logs

1. Write the log as a single log if necessary.
2. Write the single log in exponential form.
3. Solve.

Example Problem(s)

ex.) Solve. Round to the nearest hundredth.

a) $3^x = 4$

$\log_3 4 = x$

$\frac{\log 4}{\log 3} = x$

$1.26 = x$

b) $\log(3x+1) = 5$

$3x+1 = 10^5$

$3x+1 = 100{,}000$

$3x = 99{,}999$

$x = 33{,}333$

c) $2\log x = -1$

$\log x^2 = -1$

$x^2 = 10^{-1}$

$\sqrt{x^2} = \sqrt{\frac{1}{10}}$

$x = 0.32$

d) $3^{x+4} = 101$

$\log_3 101 = x+4$

$\log_3 101 - 4 = x$

$\frac{\log 101}{\log 3} - 4 = x$

$0.20 = x$

e) $5\log x - \log 3 = 2$

$\log x^5 - \log 3 = 2$

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

$\frac{x^5}{3} = 10^2$

$3 \cdot \frac{x^5}{3} = 100 \cdot 3$

$\sqrt[5]{x^5} = \sqrt[5]{300}$

$x = 3.13$

F) $2\log x + \log 4 = 2$

$\log x^2 + \log 4 = 2$

$\log 4x^2 = 2$

$4x^2 = 10^2$

$4x^2 = 100$

$\sqrt{x^2} = \sqrt{25}$

$x = 5$

g) $6^{2x} = 21$

$\log_6 21 = 2x$

$\frac{\frac{\log 21}{\log 6}}{2} = x$

$0.85 = x$