

8.6 Common Logarithms (pg 516)

1.a: $\log 5$

$\log 13$ (enter) = 0.6990

b. $\log 0.3$

$\log 0.3$ (enter) = -0.5229

Log = inverse of exp. function

$\log_{10} 5 = \log 5$

2) $L = 10 \log \frac{I}{I_0}$

$\frac{60 \cdot 6}{10} = 12 \log \frac{I}{I_0}$

$6 \cdot 60 = \log_{10} I$

$10 \cdot 60 = I$

$4570, 882 = I$

2A) $\log E = 11.8 + 1.5 M$

$\log E = 11.8 + 1.5 (9)$

$\log_{10} E = 25.3$

$10^{25.3} = E$

$1.995 \times 10^{25} = E$

3) $4^x = 19$

$4^x = 16$

3A) $3^x = 15$

$\log 4^x = \log 19$

$x^x = x^2$

$\log 3^x = \log 15$

$x \log 4 = \log 19$

$x = 2$

$x \log 3 = \log 15$

$x = 2.123$

$x = 2.465$

4) $\log 3 < \log 4 - 2$

pg 519 $9 \log 11 - 3 \log 5 = b$

$5y \log 3 < (y-2) \log 7$

$(b-3) \log 11 = b \log 5$

$5y \log 3 < y \log 7 - 2 \log 7$

$b \log 11 - 3 \log 11 = b \log 5 - b \log 11$

$-y \log 7 - y \log 7$

$(-3 \log 11) = b(\log 5 - \log 11)$

$5y \log 3 - y \log 7 < -2 \log 7$

$(\log 5 - \log 11) (\log 5 - \log 11)$

$y(5 \log 3 - \log 7) < -2 \log 7$

1.5406 $9.1237 = b$

1.5406

$11.1237 = b$

$y < -1.097$

$p - 1 \log 6 \leq p \log 4$

$p \log 6 - \log 6 \leq p \log 4 - p \log 6$

$-p \log 6 - \log 6 \leq p \log 4 - p \log 6$

$4.4 \geq p$

8.6 Common Logarithms (pg 516)

1.a: $\log 5$

$\log 15$ (enter) = 0.6990

b. $\log 0.3$

$\log 0.3$ (enter) = -0.5229

Log = inverse of exp. function

$\log_{10} 5 = \log 5$

2) $L = 10 \log \frac{I}{I_0}$

$66.6 = 10 \log \frac{I}{I_0}$

$6.66 = \log \frac{I}{I_0}$

$10^{6.66} = I$

$4570, 882 = I$

2A) $\log E = 11.8 + 1.5M$

$\log E = 11.8 + 1.5(9)$

$\log_{10} E = 25.3$

$10^{25.3} = E$

$1.995 \times 10^{25} = E$

3) $4^x = 19$

$\log 4^x = \log 19$

$x \log 4 = \log(19)$

$x = \frac{\log(19)}{\log(4)}$

$x = 2.123$

$4^x = 16$

$x^x = 4^2$

$x = 2$

3A) $3^x = 15$

$\log 3^x = \log 15$

$x \log 3 = \log 15$

$x = \frac{\log 15}{\log 3}$

$x = 2.465$

4) $\log 3 < \log 4 - 2$

$5y \log 3 < (y-2) \log 7$

$5y \log 3 < y \log 7 - 2 \log 7$

$-y \log 7 - y \log 7$

$5y \log 3 - y \log 7 < -2 \log 7$

$y(5 \log 3 - \log 7) < -2 \log 7$

$y(2.385 - .84) < -1.5406$

$y < -1.097$

pg 519 $(b-3) \log 11 = b \log 5$

$(b-3) \log 11 = b \log 5$

$b \log 11 - 3 \log 11 = b \log 5$

$-b \log 11$

$(-3 \log 11) = b(\log 5 - \log 11)$

$(\log 5 - \log 11) (log 5 - log 11)$

1.5406

$9.1237 = b$

11. $\log 2 = \log 4$

$(p-1) \log 6 = p \log 4$

$p \log 6 - \log 6 = p \log 4 - p \log 6$

$-p \log 6 - \log 6 = p(\log 4 - \log 6)$

$-1.176 - .176 = p(-.776)$

$4.4 \geq p$