Introduction to Logarithmic Functions 4.2

Overview of Problems

Example Set: A

Write the log equation in exponential form:

1. $\log_5 125 = 3$

2. $\log_8 64 = 2$

3. $\log_7 13 = x$

4. $\log_{25} 5 = \frac{1}{2}$

5. $\log_2 16 = 4$

6. $\log 1000 = 3$

7. $\log_{x+1} 4 = 2$

8. $\log_{16} \frac{1}{4} = -\frac{1}{2}$

Introduction to Logarithmic Functions 4.2

Overview of Problems

Example Set: B

Write the exponential equation in log form:

1. $2^7 = x$

2. $14^3 = x$

3. $6^{(x+2)} = 12$

4. $x^5 = x + 8$

5. $9^2 = x$

6. $64^{-\frac{1}{2}} = x$

7. $10^{-2.39} = x$

8. $3^{-1} = \frac{1}{3}$

Introduction to Logarithmic Functions 4.2

Overview of Problems

Example Set: C

Evaluate the log expression without a calculator:

1. $\log_9 81$

2. $\log 10{,}000$

3. $\log .01$

4. $\log_5 125$

5. $\log_4 64$

6. $\log_2 \frac{1}{8}$

Introduction to Logarithmic Functions 4.2

Overview of Problems

Example Set: D

Evaluate the log expression (use your calculator and the change of base formula):

1. $\log_6 9$

2. $\log_5 20$

3. $\log_{2.9} 14$

4. $\log 33$

5. $\log_4 7$

6. $\log_{\frac{1}{4}} 12$

Introduction to Logarithmic Functions 4.2

Overview of Problems

Example Set: E

Solve the basic log equations:

1. $\log_2 32 = x$

2. $\log_x 64 = 3$

3. $\log_9 x = -2$

4. $\log_{\frac{1}{10}} = x$

5. $\log_3(2x - 1) = 2$

6. $\log_{(x+1)} 2 = 2$

Introduction to Logarithmic Functions 4.2

Overview of Problems

*Example Set: A -**ANSWER KEY***

Write the log equation in exponential form:

1. $\log_5 125 = 3$ $5^3 = 125$

2. $\log_8 64 = 2$ $8^2 = 64$

3. $\log_7 13 = x$ $7^x = 13$

4. $\log_{25} 5 = \frac{1}{2}$ $25^{\frac{1}{2}} = 5$

5. $\log_2 16 = 4$ $2^4 = 16$

6. $\log 1000 = 3$ $10^3 = 1000$

7. $\log_{x+1} 4 = 2$ $(x+1)^2 = 4$

8. $\log_{16} \frac{1}{4} = -\frac{1}{2}$ $16^{-\frac{1}{2}} = \frac{1}{4}$

Introduction to Logarithmic Functions 4.2

Overview of Problems

Example Set: B- ***ANSWER KEY***

Write the exponential equation in log form:

1. $2^7 = x$ $\log_2 x = 7$

2. $14^3 = x$ $\log_{14} x = 3$

3. $6^{(x+2)} = 12$ $\log_6 12 = (x+2)$

4. $x^5 = x + 8$ $\log_x (x+8) = 5$

5. $9^2 = x$ $\log_9 x = 2$

6. $64^{-\frac{1}{2}} = x$ $\log_{64} x = -\frac{1}{2}$

7. $10^{-2.39} = x$ $\log x = -2.39$

8. $3^{-1} = \frac{1}{3}$ $\log_3 \frac{1}{3} = -1$

Introduction to Logarithmic Functions 4.2

Overview of Problems

*Example Set: C-**ANSWER KEY***

Evaluate the log expression without a calculator:

1. $\log_9 81$ 2

2. $\log 10{,}000$ 4

3. $\log .01$ -2

4. $\log_5 125$ 3

5. $\log_4 64$ 3

6. $\log_2 \frac{1}{8}$ -3

Introduction to Logarithmic Functions 4.2

Overview of Problems

*Example Set: D-**ANSWER KEY***

Evaluate the log expression (use your calculator and the change of base formula):

1. $\log_6 9$ 1.226

2. $\log_5 20$ 1.861

3. $\log_{2.9} 14$ 2.47

4. $\log 33$ 1.518

5. $\log_4 7$ 1.403

6. $\log_{\frac{1}{4}} 12$ -1.79

Introduction to Logarithmic Functions 4.2

Overview of Problems

*Example Set: E-**ANSWER KEY***

Solve the basic log equations:

1. $\log_2 32 = x$ x=5

2. $\log_x 64 = 3$ x=4

3. $\log_9 x = -2$ $x = \frac{1}{81}$

4. $\log_{\frac{1}{10}} = x$ $x = -1$

5. $\log_3(2x - 1) = 2$ x=5

6. $\log_{(x+1)} 2 = 2$ $x = -1 \pm \sqrt{2}$