

1.8.2: Logarithmic Functions Worksheet

Date: _____

1. Evaluate each of the following.

a) $\log 100$

b) $\log 0.01$

c) $\log 100\,000$

2. Use your calculator to evaluate each of the following to three decimal places.

a) $\log 25$

b) $\log 0.004$

c) $\log 636$

3. Write in exponential form.

a) $\log 10\,000 = 4$

b) $\log 10 = 1$

c) $\log 0.000\,1 = -4$

d) $\log_4 64 = 3$

e) $\log_6 \frac{1}{216} = -3$

f) $\log_3 2187 = 7$

4. Write each of the following in logarithmic form.

a) $3^4 = 81$

b) $4^{-2} = \frac{1}{16}$

c) $4^{\frac{-3}{2}} = \frac{1}{8}$

5. Solve for x (round to three decimal places where necessary).

a) $\log x = -3$

b) $\log_x 49 = 2$

c) $5^x = 8$

d) $3^{x+2} = 5$

e) $\log_4 \frac{1}{64} = x$

Answers

1a) 2

b) -2

c) 5

2a) 1.398

b) -2.398

c) 2.803

3a) $10^4 = 10\,000$

b) $10^1 = 10$

c) $10^{-4} = 0.0001$

d) $4^3 = 64$

e) $6^{-3} = \frac{1}{216}$

f) $3^7 = 2187$

4a) $\log_3 81 = 4$

b) $\log_4 \frac{1}{16} = -2$

c) $\log_4 \frac{1}{8} = \frac{-3}{2}$

5a) 0.001

b) 7 [$\because x > 0$]

c) 1.292

d) -0.535

e) -3