

Writing Logs in Terms of Others

Use the properties of logarithms and the values below to find the logarithm indicated. Do not use a calculator to evaluate the logs.

1) $\log 12 \approx 1.1$
 $\log 7 \approx 0.8$
 $\log 8 \approx 0.9$
Find $\log \frac{1}{49}$

2) $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
 $\log 7 \approx 0.8$
Find $\log \frac{1}{7}$

3) $\log 12 \approx 1.1$
 $\log 7 \approx 0.8$
 $\log 8 \approx 0.9$
Find $\log \frac{1}{12}$

4) $\log 8 \approx 0.9$
 $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
Find $\log \frac{3}{2}$

5) $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
Find $\log \frac{2}{3}$

6) $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
Find $\log 64$

7) $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
Find $\log \frac{7}{12}$

8) $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
Find $\log 144$

9) $\log_7 11 \approx 1.2$
 $\log_7 6 \approx 0.9$
 $\log_7 4 \approx 0.7$
Find $\log_7 \frac{24}{11}$

10) $\log_7 6 \approx 0.9$
 $\log_7 9 \approx 1.1$
 $\log_7 11 \approx 1.2$
Find $\log_7 \frac{14}{3}$

11) $\log_3 10 \approx 2.1$
 $\log_3 8 \approx 1.9$
 $\log_3 7 \approx 1.8$
Find $\log_3 700$

12) $\log_9 6 \approx 0.8$
 $\log_9 8 \approx 0.9$
 $\log_9 5 \approx 0.7$
Find $\log_9 324$

13) $\log_4 6 \approx 1.3$
 $\log_4 7 \approx 1.4$
 $\log_4 10 \approx 1.7$
Find $\log_4 \frac{7}{16}$

14) $\log_5 9 \approx 1.4$
 $\log_5 7 \approx 1.2$
 $\log_5 6 \approx 1.1$
Find $\log_5 150$

15) $\log_3 10 \approx 2.1$
 $\log_3 8 \approx 1.9$
 $\log_3 11 \approx 2.2$
Find $\log_3 \frac{11}{30}$

16) $\log_6 4 \approx 0.8$
 $\log_6 10 \approx 1.3$
 $\log_6 9 \approx 1.2$
Find $\log_6 \frac{9}{40}$

Use the properties of logarithms and the logarithms provided to rewrite each logarithm in terms of the variables given.

17) $\log_6 4 = R$
 $\log_6 11 = S$
 $\log_6 10 = T$
Find $\log_6 150$

18) $\log_8 6 = X$
 $\log_8 11 = Y$
 $\log_8 9 = Z$
Find $\log_8 \frac{512}{11}$

19) $\log_4 6 = A$
 $\log_4 7 = B$
 $\log_4 9 = C$
Find $\log_4 \frac{8}{21}$

20) $\log_6 11 = X$
 $\log_6 10 = Y$
 $\log_6 4 = Z$
Find $\log_6 12100$

21) $\log_9 7 = X$
 $\log_9 6 = Y$
 $\log_9 8 = Z$
Find $\log_9 \frac{9}{448}$

22) $\log_9 10 = X$
 $\log_9 12 = Y$
 $\log_9 7 = Z$
Find $\log_9 \frac{5}{864}$

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1) $\log 12 \approx 1.1$
 $\log 7 \approx 0.8$
 $\log 8 \approx 0.9$
 Find $\log \frac{1}{49}$

-1.6

2) $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
 $\log 7 \approx 0.8$
 Find $\log \frac{1}{7}$

-0.8

3) $\log 12 \approx 1.1$
 $\log 7 \approx 0.8$
 $\log 8 \approx 0.9$
 Find $\log \frac{1}{12}$

-1.1

4) $\log 8 \approx 0.9$
 $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 Find $\log \frac{3}{2}$

0.2

5) $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
 Find $\log \frac{2}{3}$

-0.2

6) $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
 Find $\log 64$

1.8

7) $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
 Find $\log \frac{7}{12}$

-0.3

8) $\log 7 \approx 0.8$
 $\log 12 \approx 1.1$
 $\log 8 \approx 0.9$
 Find $\log 144$

2.2

9) $\log_7 11 \approx 1.2$
 $\log_7 6 \approx 0.9$
 $\log_7 4 \approx 0.7$
 Find $\log_7 \frac{24}{11}$

0.4

10) $\log_7 6 \approx 0.9$
 $\log_7 9 \approx 1.1$
 $\log_7 11 \approx 1.2$
 Find $\log_7 \frac{14}{3}$

0.8

11) $\log_3 10 \approx 2.1$
 $\log_3 8 \approx 1.9$
 $\log_3 7 \approx 1.8$
 Find $\log_3 700$

6

12) $\log_9 6 \approx 0.8$
 $\log_9 8 \approx 0.9$
 $\log_9 5 \approx 0.7$
 Find $\log_9 324$

2.6

$$13) \log_4 6 \approx 1.3$$

$$\log_4 7 \approx 1.4$$

$$\log_4 10 \approx 1.7$$

$$\text{Find } \log_4 \frac{7}{16}$$

$$-0.6$$

$$15) \log_3 10 \approx 2.1$$

$$\log_3 8 \approx 1.9$$

$$\log_3 11 \approx 2.2$$

$$\text{Find } \log_3 \frac{11}{30}$$

$$-0.9$$

$$14) \log_5 9 \approx 1.4$$

$$\log_5 7 \approx 1.2$$

$$\log_5 6 \approx 1.1$$

$$\text{Find } \log_5 150$$

$$3.1$$

$$16) \log_6 4 \approx 0.8$$

$$\log_6 10 \approx 1.3$$

$$\log_6 9 \approx 1.2$$

$$\text{Find } \log_6 \frac{9}{40}$$

$$-0.9$$

Use the properties of logarithms and the logarithms provided to rewrite each logarithm in terms of the variables given.

$$17) \log_6 4 = R$$

$$\log_6 11 = S$$

$$\log_6 10 = T$$

$$\text{Find } \log_6 150$$

$$1 + 2T - R$$

$$18) \log_8 6 = X$$

$$\log_8 11 = Y$$

$$\log_8 9 = Z$$

$$\text{Find } \log_8 \frac{512}{11}$$

$$3 - Y$$

$$19) \log_4 6 = A$$

$$\log_4 7 = B$$

$$\log_4 9 = C$$

$$\text{Find } \log_4 \frac{8}{21}$$

$$2 - B - A$$

$$20) \log_6 11 = X$$

$$\log_6 10 = Y$$

$$\log_6 4 = Z$$

$$\text{Find } \log_6 12100$$

$$2Y + 2X$$

$$21) \log_9 7 = X$$

$$\log_9 6 = Y$$

$$\log_9 8 = Z$$

$$\text{Find } \log_9 \frac{9}{448}$$

$$1 - X - 2Z$$

$$22) \log_9 10 = X$$

$$\log_9 12 = Y$$

$$\log_9 7 = Z$$

$$\text{Find } \log_9 \frac{5}{864}$$

$$X - 3Y$$