LOGARITHMS

Exercise 1: Find the value of the following logarithms:

a) $\log_2 8 =$

b) $\log_5 625 =$

c) $\log 100000 =$

d) $\ln e^2 =$

e) $\log_6 7776 =$

f) $\log 0.001 =$

g) $\log_2 \sqrt{2} =$

h) $\log_3 \frac{1}{81} =$

i) $\log_2 \frac{1}{128} =$

j) $\log_7 \frac{1}{343} =$

k) $\log_{\frac{1}{2}} 16 =$

l) $\log_{\frac{1}{3}} 243 =$

m) $\log_2 \sqrt[3]{2} =$

n) $\log_2 \sqrt[5]{8} =$

o) $\log_{\frac{1}{2}} \sqrt{2} =$

p) $\log_{\frac{1}{3}} \sqrt{27} =$

q) $\log_4 \frac{1}{32} =$

r) $\log_9 \sqrt{3} =$

s) $\log_{\frac{1}{25}} \sqrt{5} =$

t) $\log_{27} \sqrt{243} =$

u) $\log_2 16^{10} =$

Exercise 2: Find the value of x:

a) $\log_x 1000 = 3$

b) $\log_x 32 = -5$

c) $\log_2 x = -3$

d) $\log_x \frac{1}{64} = -3$

e) $\log_x 125 = -3$

f) $\log_x 16 = -2$

Exercise 3: If $\log 2 = 0.3$ work out:

a) $\log 8 =$

b) $\log 5 =$

c) $\log 25 =$

d) $\log 50 =$

e) $\log \frac{1}{32} =$

f) $\log 0.25 =$

g) $\log 0.64 =$

h) $\log 0.625 =$

Exercise 4: Work out:

a) $\log_5 250 - \log_5 2 =$

b) $\log_6 81 + \log_6 16 =$

c) $\log_7 6125 - \log_7 125 =$

d) $\log_2 8 + \log_2 \sqrt{8} - \log_2 \frac{1}{4} =$

e) $\log_5 7 + \log_5 250 - \log_5 14 =$

f) $\log_7 4 + \log_7 147 - \log_7 2 - \log_7 6 =$

g) $\log_8 6 - \log_8 3 + \log_8 2 =$

h) $\log_3 \frac{1}{81} + \log_2 \frac{\sqrt{32}}{8} + \log_3 \frac{\sqrt{3}}{9} =$

Exercise 5: Work out:

a) $\log_5 \sqrt{125} =$

b) $\log_7 \frac{1}{\sqrt[3]{49}} =$

c) $\log_2 \frac{\sqrt{2}}{\sqrt[5]{8}} =$

d) $\log_5 \frac{\sqrt{125} \cdot \sqrt[4]{5}}{625} =$

e) $\log_7 \frac{49 \cdot \sqrt[3]{7}}{\sqrt{343}} =$

f) $\log_3 \frac{\sqrt[5]{3} \cdot \sqrt[4]{729}}{\sqrt{27}} =$

g) $\log_2 \frac{\sqrt[7]{8} \cdot \sqrt[3]{4}}{\sqrt{32} \cdot \sqrt[5]{2}} =$

Exercise 6: If $\log 5 = 0.7$, find the value of $\log \frac{\sqrt{125}}{\sqrt[3]{625}}$

Exercise 7: If $\log 2 = 0.3$, find the value of $\log \frac{8\sqrt{32}}{\sqrt[3]{4}}$

Exercise 8: If $\log 7 = 0.845$, find the value of $\log \frac{\sqrt{7}\sqrt[5]{343}}{\sqrt[3]{49}}$ rounding to the nearest thousandth

Exercise 9: If $\log 3 = 0.48$, find the value of $\log \frac{81\sqrt{3}}{\sqrt[4]{27}\sqrt{243}}$

Exercise 10: Knowing that $\log 2 = 0.3$ find the values of $\log_2 100$, $\log_4 100$ and $\log_8 10000$

Exercise 11: Work out:

a) $\frac{\log_7 245 - \log_7 5}{\log_7 686 - \log_7 2} =$

b) $\frac{\log_5 256 - \log_5 8}{\log_5 2 + \log_5 64} =$

c) $\frac{\log_2 12 + \log_2 18}{\log_2 90 - \log_2 15} =$