

614 Homework Due 11/30

p. 194 2, 3, 7, 12, 17, 35, 39, 42, 45

② $\log_4 64 = 3$
 $4^3 = 64$

③ $\log_6 \left(\frac{1}{36}\right) = -2$
 $6^{-2} = \frac{1}{36}$

⑦ $\ln 8 \approx 2.1$
 $e^{2.1} \approx 8$

⑫ a. $\log_2 4 = 2$

⑰ a. $\ln e = 1$

③⑤ a. $\log x = 3$
 $x = 1000$

b. $\log_2 32 = 5$

b. $\ln e^2 = 2$

b. $\log |x| = 3$

c. $\ln \frac{1}{e} = -1$

$|x| = 1000$

$x = 1000$ or -1000

c. $\log_2 64 = 6$

d. $\ln \sqrt{e} = \frac{1}{2}$

c. $\log |x - 1| = 3$

$|x - 1| = 1000$

$x = 1001$ or -999

d. $\log_2 2^{10} = 10$

③⑨ $\log_5 (\log_3 x) = 0$

④② a) $\log x = 1.4$

a) $5^0 = \log_3 x$

$x = 10^{1.4} \approx 25.12$

$1 = \log_3 x$

b) $\log x = 0.4$

$x = 10^{0.4} = 2.51$

$x = 3$

c) $\log x = -0.6$

$x = 10^{-0.6} = 0.25$

b) $\log (\log x) = 1$

$\log x = 10$

$x = 10^{10}$

④⑤ $\text{pH of Gastric juices} = -\log(10^{-2}) = 2 < 7 \rightarrow \text{acidic}$

Acid rain = $-\log(3 \times 10^{-5}) = 4.52 \rightarrow \text{acidic}$

Water = $-\log(10^{-7}) = 7 \rightarrow \text{neutral}$

Soil = $-\log(5 \times 10^{-7}) = 6.30 \rightarrow \text{acidic}$

sea water = $-\log(10^{-8}) = 8 \rightarrow \text{alkaline}$

c) $\ln(\ln x) = 1$

$\ln x = e$

$x = e^e$