Finite math assignment essay

ASSIGN BUSTER

1.) Log10 2 = X is equivalent to 10X = 2.

Since 101 = 10, then we know that X is between 0 and 1. 10. 5 = 3. 16, 10. 25 = 1. 78, 10.

3 = 1. 9953. This is pretty close, so: 10. 31 = 2. 04, 10. 305 = 2.

012, 10. 301 = 1. 9999, 10. 30101 = 1. 99991 10. 30104 = 2.

00005 Therefore, to four decimal places, log10 2 = . 30102.) ex = 1 + X/1! + X2/2! + X3/3! + … + Xn/n! + …. e4 = 1 + 4/1! + 42/2! + 43/3! + … + 4n/n! + … e4 = 1 + 4/1 + 16/2 + 64/6 + 256/24 + 1024/120 + 4096/720 + 16384/5040 + 65536/ 40320 + 256144/362280 + 1048576/3628800 + 4194304/39916800 + 16777216/479001600 + 67108864/6227020800 + 268435456/87178291200 + 1073741824/1307674368000 + 4294967296/20922789888000 + 17179869184/355687428096000 + 68719476736/6402373705728000 e4 = 1 + 4 + 8 + 10. 66667 + 10. 66667 + 8.

5333 + 5. 68889 + 3. 25079 + 1.

6254 + . 70703 + . 28896 + . 10508 + . 03503 + .

01078 + 0. 00308 + . 00082 + . 00021 + . 00005 + . 00001 e4 = 54.

58923.) ln(23) = ln(2*2*2) = ln(2) + ln(2) + ln(2) = 3 ln(2) ln x = (x-1)/x + ½((x-1)/x)2 + 1/3((x-1)/x)3 + … +1/n((x-1)/x)n + … ln 2 = (2-1)/2 + ½((2-1)/2)2 + 1/3((2-1)/2)3 + … +1/n((2-1)/2)n + … ln 2 = ½ + ½(1/2)2 + 1/3(1/2)3 + … +1/n(1/2)n + … ln 2 = . 5 + . 125 + . 04167 + .

01563 + . 00625 + . 0026 + . 00112 + . 00049 + . 00022 + .

0001 + . 00004 +. 00002 + . 000009 ln 2 = . 69314 3 ln 2 = 2.

0794 ln 8 = 2.

07944.) S = Pert r=. 12, S= 2P 2P= Pe. 12t 2= e. 12t ln 2 = .

12t . 69314 = . 12t t = 5. 78 years5.) P = (1000) e-0.

5t a.) t = 0 when first removed from the market, so: P =

(1000) e-0. 5 (0) P = (1000) e0 P = (1000)

(1) P = 1000 b.

) t= 5 years P = (1000) e-0. 5(5) P = (1000) e-2.

5 P = (1000) (. 08208) P= 82. 08 P = 82

Parts after 5 years6.) N(t) = N0 e-.

056t N0 = Original Amount, find time t to reach half of original

amount N(t)/N0 = e-. 056t N(t)/N0 = . 5, since the amount left at

time t is going to be half the original (N0) amount. . 5 =

e-. 056t ln(. 5) = -. 056t -. 6931 = -. 056t t = 12. 3776

Therefore, Half life is 12. 3776 years.