Solving Equations Using Common and Natural Logarithms Practice

Solve each equation using common logarithms.

1.)  2.)  3.) 

log(8x) = log(10) log(2.4x) = log(20) log(1.8x-5) = log(19.8)

xlog(8) = log(10) xlog(2.4) = log(20) (x-5)log(1.8) = log(19.8)

x = log(10)/log(8) x = log(20)/log(2.4) x-5 = log(19.8)/log(1.8)

**x ≈ 1.1073**  **x ≈ 3.4219**  x = log(19.8)/log(1.8) + 5

  **x ≈ 10.0795**

4.)  5.) 

log(35x) = log(85) log(42x) = log(25)

5xlog(3) = log(85) 2xlog(4) = log(25)

x = log(85) / (5log(3)) x = log(25) / (2log(4))

**x ≈ 0.8088 x ≈ 1.1610**

Solve each equation using natural logarithms,

6.)  7.)  8.) 

ln(6x) = ln(42) ln(7x) = ln(4x+3) ln(1249) = ln(175e-0.04t)

xln(6) = ln(42) xln(7) = (x+3)ln(4) ln(1249) = ln(175)+ ln(e-0.04t)

x = ln(42)/ln(6) xln(7) = xln(4) + 3ln(4) ln(1249)-ln(175) = -0.04t

**x ≈ 2.0860** xln(7) – xln(4) = 3ln(4) (ln(1249)-ln(175)) / -0.04 = t

 x(ln(7) – ln(4)) = 3ln(4) **t ≈ -49.1328**

 x = 3ln(4) / (ln(7) – ln(4))

 **x** **≈ 7.4317**

9.)  10.) 

ln(12) = ln(e0.048x) ln(8.4) = ln(et-2)

ln(12) = 0.048x ln(8.4) = t-2

ln(12) / 0.048 = x ln(8.4) + 2 = t

**x** **≈ 51.7689 t ≈ 4.1282**