**Change to logarithmic form.**

1. (a) 43 = 64 (b) 4-3 = $\frac{1}{64}$ (c) tr = s (d) 3x = 4-t (e) (0.7)t = 5.3

**Change to exponential form.**

2. (a) log2 32 = 5 (b) log3$ \frac{1}{243}$= -5 (c) logt r = p (d) log3(x+2) = 5 (e) log2 m = 3x+4

**Solve for t using logarithms with base a.**

3. A = BaCt + D 4. L = Mat/N - P

**Change to logarithmic form.**

5. (a) 105 = 100,000 (b) 10-3 = 0.001 (c) 10x = y + 1 (d)e7 = p (e) e2t = 3 - x

**Change to exponential form.**

6. log x = -8 (b) log x = y - 2 (c) ln x = 1/2 (d) ln z = 7 + x (e) ln (t - 5) = 1.2

**Find the number, if possible.**

7. (a) log5 1 (b) log3 3 (c) log4 (-2) (d) log7 72 (e) 3log38

(f) log5 125 (g) log4 1/16 (h) 10log 3 (i) log 105 (j) log 100

(k) log 0.0001 (l) eln 2 (m) ln e-3 (n) log 10-6 (o) e1+ln 5

**Solve the equation.**

8. log4 x = log4 (8 - x) 9. log3 (x + 4) = log3 (1 - x) 10. logx2 = log(-3x - 2)

11. log2 (x - 5) = 4 12. ln x2 = -2 13. e -lnx = 0.2

**Sketch the graph of f.**

14. f(x) = log (x + 10) 15. f(x) = log (x + 100) 16. f(x) = ln |x|

  

Approximate x to three significant figures.

17. (a) log x = 3.6274 (b) log x = 0.9469 (c) log x = -1.6253