Financial Mathematics Algebra/Calculus Prep

Student\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Let f(x) = ax

f(x,y) = ax \* by

g(x) = 1 + a\*x

h(x) = 1/ ax

i(x) = ∑ bt \* at, summation from t = 1 to t = x.

j(x) = (1 + a/x)x

k(x) = (b-a)/a

**ln(a+b) ≠ ln(a) + ln(b), However, ln(a\*b) = ln(a) + ln(b)**

**Algebra Problems**

1. What is the quadratic formula?

2. Let a = 2 f(3) = 8

3. Let a = 1.05 f(3) = 1.157625

4. Let a = 2, b = 3 f(5,10) = 1,889,568

5. Let a=1.05, b= 1.04 f(5,10) = 1.889208489

6. Let a=2 g(3) = 7

7. Let a = .05 g(3) = 1.15

8. Let a = 2 h(3) = .125

9. Let a = 1.05 h(3) = .863837599

10. Let a = 2, b1 = 10, b2 = 20 i(2) = 100

 11. Let a = .95, b1 = 10, b2 = 20 i(2) = 27.55

12. Let a = 2 j(3) = 4.62962963

13. Let a = .05 j(3) = 1.050837963

14. Let a=12, b =10 k(3) = -.1666667

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Other problems

15. a10 = b5 \* c5, let a = 2, b = 3. Find the value of c. c = 1.333333

16. Same problem, let a=1.13, b = 1.17, find the value of c. c = 1.091368

17. 3000 = 1000 \* a10, find the value of a. a = 1.116123

18. 3000 = 1000 \* at, if a = 1.01, find the value of t. t = 110.4096

19. 100 + x \* a5 = 200 \* a3 + 300 \* a5, if 1/a = 1.04 find the value of x. x = 394.6547

20. 1000 \* x2 - 2000 \* x + 1092 = 0, find x. Equation cannot be solved in real numbers. There is a complex number solution but Theory of Interest deals in real numbers.

21. 1.155625 = (1 + x/365)365, find x. x = 0.14467

22. 1.226 = 1.0915n, find the value of n. n = 2.327243

23. 2.812331 \* x2 - x - 3 = 0, find the value of x. x = 1.225805 or -0.87023

24. 67.5 \* x2 - 24.00145 x - 72.00434 = 0, find the value of x. x = 1.225806 or -0.87023

25. x10 + 2 \* x5 + 1 = 0, find the value of x. x = -1 or -1

26. x \* (.92).5 = 4992, find the value of x. x = 5204.519775

27. 40 \* x2 - 1000\*x + 1000 = 0, find the value of x. x = 23.95644 or 1.043561

28. Solve this system of equations for a and b.

 1.52 = 16 \*a + 4b +1

 1.2 = 4a +2b + 1

28 Answer, a = .015, b = .07

Financial Mathematics - Calculus Prep Problems

29. Given f(x) = 2/(x+1) what is ? Integral = 2 ln(x+1) + C

30. Given same f(x), what is ? Answer = 36

31. Given f(x) = .01x3 what is ? Integral = .0025x4 + C

32. Given same f(x), what is ? Answer = 4.7707.