

1. The amount of money,  $A$ , accrued at the end of  $n$  years when a certain amount,  $P$ , is invested at a compound annual rate,  $r$ , is given by  $A = P(1+r)^n$ . If a person invests \$360 in an account that pays 10% interest compounded annually, find the balance after 10 years.
2. Find the value of \$1000 deposited for 8 years in an account paying 8% annual interest compounded semiannually.
3. Graph:  $f(x) = \frac{1}{4}\left(\frac{1}{3}\right)^x$
4. Write the equation  $\log_{243} 9 = \frac{2}{5}$  in exponential form.
5. Evaluate  $\log_6 30$  to three decimal places.
6. Express as a single logarithm:  $\log_t 13 + \log_t 45$
7. Expand using the properties of logarithms:  $\log_5 \frac{x(x+3)}{x^4}$
8. Solve for  $x$  to four decimal places:  $e^{-8x} = 9.2$
9. Simplify:  $\frac{4e^{20}}{8e^8}$     [A]  $4e^{12}$     [B]  $\frac{e^{12}}{4}$     [C]  $\frac{e^{12}}{2}$     [D]  $\frac{1}{2e^{12}}$
10. Is  $f(x) = 10.2e^{0.04x}$  an example of exponential growth or decay?

11. Sketch the graph of the function.  $f(x) = \frac{1}{3}e^x - 2$



12. Find the inverse of the function.  $y = \log_{1/5} x$
13. Evaluate without using a calculator.  $\log_7 343$
14. Evaluate the expression.  $\log_{1/5} 125$
15. Evaluate  $\log_{12} 782$  to three decimal places.
16. Solve for  $x$  to four decimal places:  $e^{7x} = 2.3$
17. Solve for  $x$ .  $\log_{10} 8 - \frac{1}{3} \log_{10} x = \log_{10} 2$
18. Solve for  $x$ .  $2 \log_5 10 - \frac{1}{4} \log_5 x = \log_5 50$
19. Solve:  $\frac{1}{4} = 8^{3x-3}$       [A]  $\frac{11}{9}$       [B]  $\frac{1}{9}$       [C]  $\frac{1}{3}$       [D]  $\frac{7}{9}$
20. Solve for  $x$  to the nearest hundredth:  $6.24^x = 34$   
[A] 1.53      [B] 0.8      [C] 1.93      [D] 0.52

21. Solve the equation.  $35\log_6 x = 18$