Algebra 2CP
Chapter 9 YOU CAN...

✤ Graph each function & state the domain, range and horizontal asymptote

1. $y = 3(2)^x$
2. $y = -2\left(\frac{1}{4}\right)^x$

✤ Identify an exponential function as a growth or a decay function

3. $y = 5(0.7)^x$
4. $y = \frac{1}{3}(4)^x$
5. $y = 5\left(\frac{3}{2}\right)^x$

✤ Write an exponential function given specific information

6. pg. 553 #18
7. pg. 504 #34
8. pg. 504 #35

✤ Write an exponential function in logarithmic form

9. $7^3 = 343$
10. $5^{-2} = \frac{1}{25}$
11. $2^6 = 64$

✤ Write a logarithmic function in exponential form

12. $\log_4 64 = 3$
13. $\log_8 2 = \frac{1}{3}$
14. $\log_3 \frac{1}{27} = -3$

✤ Solve an exponential equation by writing both sides of the equation with a common base

15. $9^x = \frac{1}{81}$
16. $2^{6x} = 4^{5x+2}$
17. $49^{3x+1} = 7^{2x-5}$

✤ Solve logarithmic equations

18. $\log_{81} 3 = x$
19. $\log_{13} 169 = x$
20. $\log_4 x = \frac{1}{2}$

✤ Expand an expression using the properties of logarithms

21. $\log\left(\frac{x}{\sqrt[3]{1-x}}\right)$
22. $\log\left(\frac{a^2}{b^4\sqrt{c}}\right)$

✤ Combine an expression to a single logarithms using the properties of logarithms

23. $4\log x - \frac{1}{3}\log(x^2+1) + 2\log(x-1)$
24. $3\log x + \frac{1}{2}\log y - 4\log(y^2+1)$

✤ Evaluate the logarithmic expression

25. $\log_4 192 - \log_4 3$
26. $\log_2 8^{33}$

✤ Rewrite a logarithmic expression using the properties of logarithms

Use $x = \log_5 2$ and $y = \log_5 3$ to rewrite each expression in terms of x and y.

27. $\log_5 50$
28. $\log_5 \frac{4}{3}$
29. $\log_5 8$

✤ Solve an exponential equation using logarithms

30. $3^{4x-7} = 4^{2x+3}$
31. $6^{3x} = 8^{x-1}$
32. $12^{x-5} = 9.32$

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✤ Solve a logarithmic equation using the properties of logarithms

33. $\log_8(x^2 + x) = \log_8 12$

34. $\log_5 7 + \frac{1}{2}\log_5 4 = \log_5 x$

35. $2\log_2 x - \log_2(x + 3) = 2$

✤ Apply the compound interest and continuous interest formula to find the value of an investment at a given time

36. A man invests $5000 in an account that pays 8.5% interest per year, compounded quarterly. Find the amount after 3 years.

37. A man invests $6500 in an account that pays 6% interest per year, compounded continuously. What is the amount after 2 years?

✤ Apply the compound interest formula to calculate how long it takes for an investment to reach a specific value

38. Diane deposited $500 into a bank account that pays 3% compounded quarterly. Find how long it will take for Diane's money to double.

39. If you deposit $1200 in an account paying 4.7% interest compounded continuously, how long will it take for your money to triple?

✤ Calculate the annual rate of growth or decay

40. Able Industries bought a fax machine for $250. After 3 years, the fax machine was worth $105. Find the rate of depreciation.

41. In a laboratory, a culture increases from 30 to 195 organisms in 5 hours. What is the hourly growth rate?

42. The population of a city 10 years ago was 45,600. Since then, the population has increased at a steady rate each year. If the population is currently 64,800, find the annual rate of growth for the city.