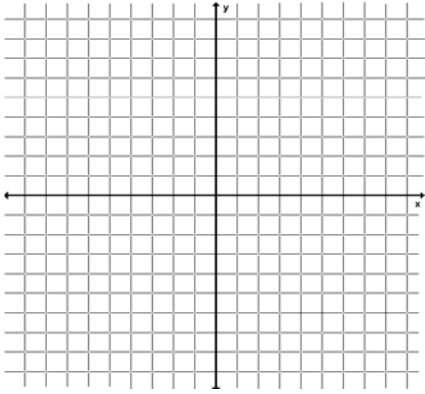


Chapter 7 Review Worksheet

Name: _____

Graph the function. Then state the domain and range.

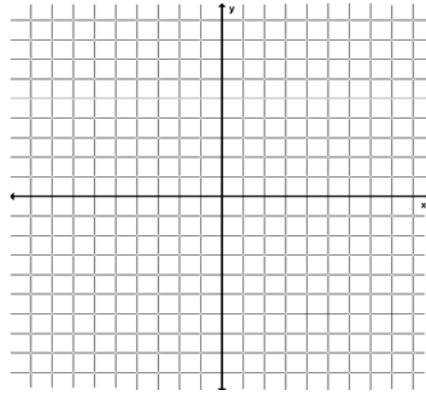
1.) $f(x) = -3 \cdot 2^{x+1} - 2$



domain: _____

range: _____

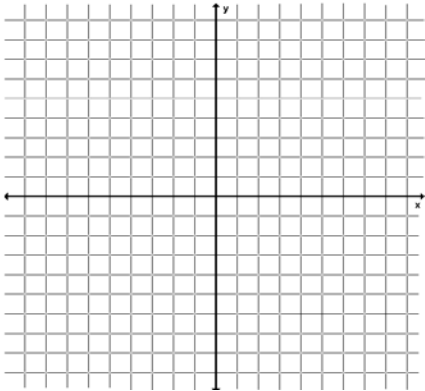
2.) $y = \frac{1}{2} e^{x-2}$



domain: _____

range: _____

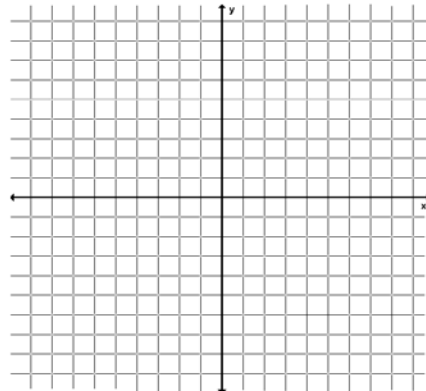
3.) $y = e^{-0.4(x+2)} + 6$



domain: _____

range: _____

4.) $y = 2(0.8)^{x-1} + 3$



domain: _____

range: _____

5.) You deposit \$1,500 into an account that pays 7% annual interest compounded daily. Find the balance of the account after 2 years.

- 6.) You deposit \$750 in a bank account. Find the balance after 5 years for each of the situations described below.
- The account pays 2.5% annual interest compounded annually.
 - The account pays 2.75% annual interest compounded monthly.
 - The account pays 3% annual interest compounded continuously.
- 7.) From 1996 to 2001, the number of households that purchased lawn and garden products at home gardening centers increased by about 4.85% per year. In 1996, about 62 million households purchased lawn and garden products.
- Write a function giving the number of households H (in millions) that purchased lawn and garden products t years after 1996. (Remember to simplify)
 - Approximately how many households purchased lawn and garden products were purchased in 2000?
- 8.) Your new boat is depreciating at an annual rate of 4%. You purchased the boat for \$1,906.
- Write a function that models the value y of the boat over time t .
 - What was the approximate value of the boat in 5 years?

Rewrite the equation in its alternate form.

9.) $\log_2 128 = 7$

10.) $y = 5^{x+3}$

11.) $\ln 5x = 2.5$

12.) $10^{3x} = 50$

Evaluate the logarithm without using a calculator.

13.) $\log_3 243$

14.) $\log_7 1$

15.) $\log_{1/6} 216$

16.) $\log_{125} \frac{1}{5}$

Find the inverse of the function.

17.) $y = \log_5 x$

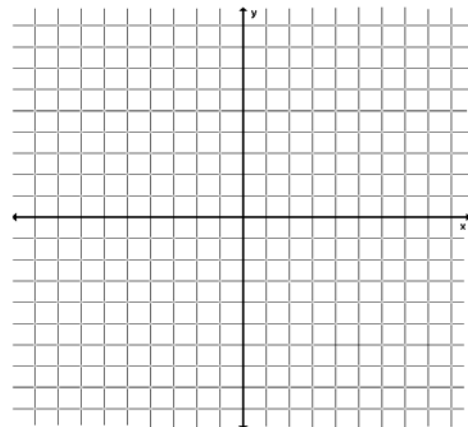
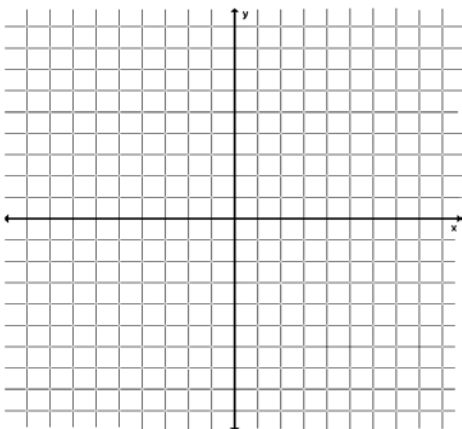
18.) $y = e^{x+2}$

19.) $f(x) = \log_6(x + 2)$

Graph the function. Then state the domain and range.

20.) $y = \log_3 x$

21.) $f(x) = \log_{4/5} x$



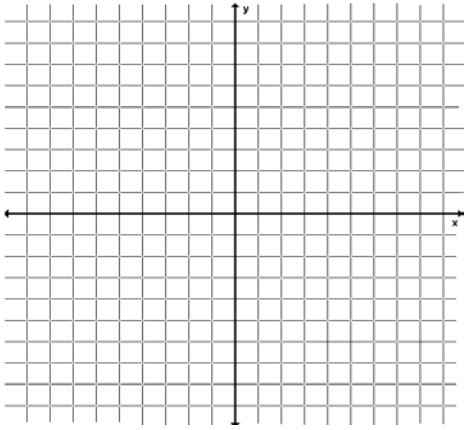
domain: _____

domain: _____

range: _____

range: _____

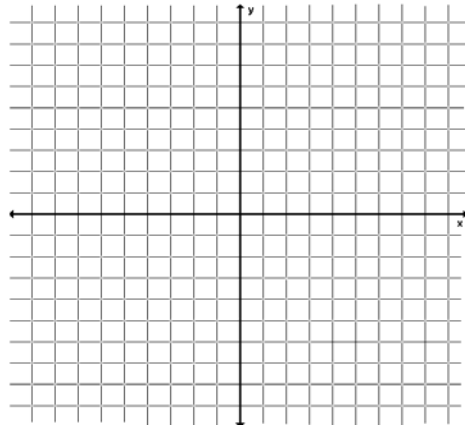
22.) $g(x) = \ln(x - 1) + 3$



domain: _____

range: _____

23.) $y = \log_2(x + 3) + 2$



domain: _____

range: _____

Use $\log 4 \approx 0.602$ and $\log 7 \approx 0.845$ to evaluate the logarithm.

24.) $\log \frac{7}{4}$

25.) $\log 28$

26.) $\log 256$

27.) $\log 49$

28.) $\log 112$

29.) $\log \frac{49}{64}$

Expand the expression.

30.) $\log_3 3x$

31.) $\log \frac{2x}{5}$

32.) $\log_7 x^2y$

33.) $\log \frac{100x^2}{y}$

34.) $\ln 5xy^3$

35.) $\log_9 \frac{2x^3}{3}$

Condense the expression.

36.) $\log_3 4 + \log_3 2 + \log_3 2$

37.) $\log 3 + \frac{1}{2}\log x - \log 5$

38.) $4 \ln x - 5 \ln x$

39.) $5 \log_4 2 + 7 \log_4 x + 4 \log_4 y$

40.) $0.5 \ln 100 - 2 \ln x + 8 \ln y$

Use the change-of-base formula to evaluate the logarithm. Round to 4 decimal places when necessary.

41.) $\log_3 10$

42.) $\log_{2.2} 22$

43.) $\log_7 \frac{3}{16}$

Solve the equation. Check for extraneous solutions. Round your solution to three decimal places if necessary.

44.) $2^{x+1} = 16^{x+2}$

45.) $e^{-x} = 4$

46.) $3^{2x} + 5 = 13$

$$47.) 3^{x+1} - 5 = 10$$

$$48.) \log_4(4x + 7) = \log_4 11x$$

$$49.) \frac{3}{4}e^{3x} - 8 = -6$$

$$50.) \log_2(3x - 1) = 8$$

$$51.) 3 \ln x - 7 = 4$$

$$52.) \ln 3x - \ln 2 = 4$$

$$53.) \log_6(x + 9) + \log_6 x = 2$$

54.) The average weight y (in kilograms) of an Atlantic cod from the Gulf of Maine can be modeled by $y = 0.51(1.46)^x$ where x is the age of the cod (in years). Estimate the age of a cod that weighs 15 kilograms.

55.) You deposit \$100 into an account that pays 6% annual interest compounded daily. How long will it take for the balance to reach \$1,000.