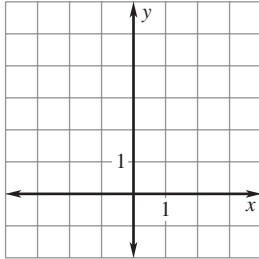


Chapter Test C

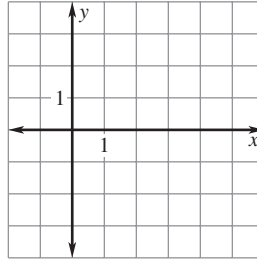
For use after Chapter 8

Graph the function. State the domain and range.

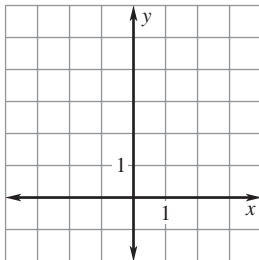
1. $y = \left(\frac{3}{2}\right)^x$



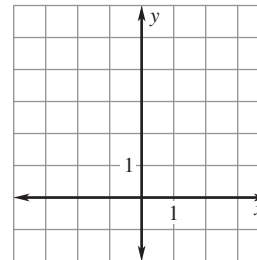
2. $y = \log_4 x$



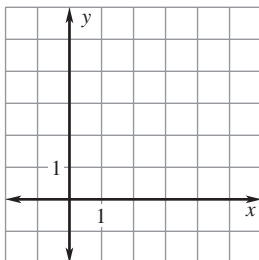
3. $y = \left(\frac{1}{2}\right)^{(x-1)}$



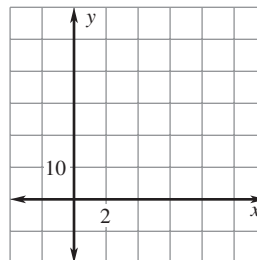
4. $y = e^x$



5. $y = -\ln x + 2$



6. $y = \frac{50}{1 + 125e^{-x}}$



Simplify the expression.

7. $(e)(e^3)$

8. $(3e)^2$

9. $\log \frac{1}{1000}$

10. $\log_2 32$

11. $\frac{4e^4}{e^5} \cdot \frac{e}{-2}$

Evaluate the expression without using a calculator.

12. $\log_2 0.25$

13. $\log_{1/2} 8$

14. $\log_2 1$

15. $\ln e^2$

Solve the equation. Check for extraneous solutions.

16. $\log_5 x = 4$

17. $10^{x^2+1} = 100,000$

Answers

1. Use grid at left. _____

2. Use grid at left. _____

3. Use grid at left. _____

4. Use grid at left. _____

5. Use grid at left. _____

6. Use grid at left. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

Chapter Test C

For use after Chapter 8

18. $2 \log_3 y = \log_3 4 + \log_3 (y + 8)$
19. $\ln(3x + 1) - \ln(x + 5) = 0$
20. Tell whether the function $f(x) = 3\left(\frac{1}{2}\right)^2$ represents *exponential growth* or *exponential decay*.
21. Find the inverse of the function $y = \log_8 x$.

Use $\log_8 100 \approx 2.214$ and $\log_{15} \frac{1}{15} \approx -1.176$ to approximate the value of the expression.

22. $\log_8 10,000$ 23. $\log 15$
24. Condense the expression $\log_4 3 + 3 \log_4 2$.
25. Expand the expression $\ln \frac{2y}{x}$.
26. Use the change-of-base formula to evaluate the expression $\log_7 125$.
27. Find the exponential function of the form $y = ab^x$ whose graph passes through the points $(-3, \frac{1}{27})$ and $(0, 1)$.
28. Find a power function of the form $y = ax^b$ whose graph passes through the points $(2, 5)$ and $(8, 12)$.
29. **Car Depreciation** The value of a new car purchased for \$28,000 decreases 8% per year. Write an exponential decay model for the value of the car. Use the model to estimate the value after 5 years.
30. **Earning Interest** You deposit \$800 in an account that pays $5\frac{1}{2}\%$ annual interest compounded continuously. Find the balance at the end of 5 years.

18. _____

19. _____

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24. _____

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27. _____

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30. _____