Name _____ Date _____

CHAPTER 8

Chapter Test A

For use after Chapter 8

Simplify the expression. Write your answer using exponents.

1. $5^2 \cdot 5^7$

2. $6 \cdot 6^3$

3. $(3^4)^2$

4. $\frac{7^6}{7^4}$

5. $\frac{(-2)^{10}}{(-2)^3}$

6. $\left(\frac{3}{8}\right)^6$

Simplify the expression.

7. $x^3 \cdot x^5$

8. $(y^4)^5$

9. $\frac{1}{w^6} \cdot w^{15}$

10. At the end of 2005, the national debt for the U.S. was about 10 trillion dollars, and the population of the U.S. was about 10^8. About how much was the per capita (per person) debt?

Evaluate the expression.

11. 3^{-2}

12. $2^{-4} \cdot 2$

13. $\frac{5^{-2}}{5^{-3}}$

Simplify the expression. Write your answer using only positive exponents.

14. p^{-5}

15. $\frac{1}{7t^{-3}}$

16. $(6m^{-2}n^3)^0$

17. One of the shortest electromagnetic wavelengths comes from X rays, and one of the longest electromagnetic wavelengths comes from radio waves. The wavelength of an X ray is 10^{-12} meter and is 10^{16} times shorter than the wavelength of a radio wave. What is the wavelength of a radio wave?

Write the number in scientific notation.

18. 56,000

19. 0.00351

20. 90,000,000

Write the number in standard form.

21. 3.2×10^3

22. 5.71×10^{-2}

23. 9.3×10^9

Answers

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

13. _____

14. _____

15. _____

16. _____

17. _____

18. _____

19. _____

20. _____

21. _____

22. _____

23. _____

Name _____ Date _____

CHAPTER 8

Chapter Test A *continued*

For use after Chapter 8

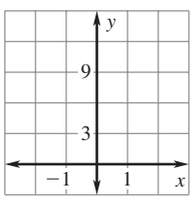
24. The distance from the sun to Earth is about 1.5×10^8 kilometers. If the speed of light is 3×10^5 kilometers per second, how many seconds does it take the light from the sun to reach Earth? Use $d = rt$.

In Exercises 25–27, use the function $y = 3^x$.

25. Complete the table for the function.

x	-2	-1	0	1	2
y					

26. Graph the function.



27. Identify the domain and range of the function.

In Exercises 28 and 29, use the following information.

You deposit $200 in a savings account that earns 5% annual interest compounded yearly. You do not make any other deposits or withdrawals.

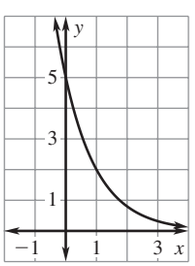
28. Write a function that models the balance in the account over time.

29. Find the balance in the account after 3 years.

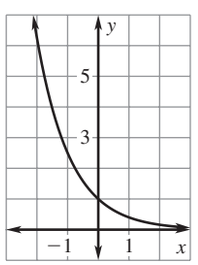
Match the function with its graph.

30. $y = (0.4)^x$ **31.** $y = 5(0.4)^x$ **32.** $y = \frac{1}{2}(0.4)^x$

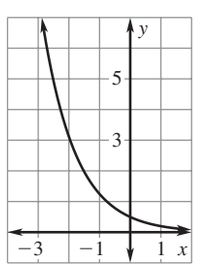
A.



B.



C.



Answers

24. _____

25. See left.

26. See left.

27. _____

_____

28. _____

29. _____

30. _____

31. _____

32. _____

33. _____