

Algebra---Chapter 8 Test REVIEW**Multiple Choice***Identify the letter of the choice that best completes the statement or answers the question.***Simplify the expression.**

- _____ 1. $(4)^{-2}$
a. $-\frac{1}{16}$ b. 16 c. $\frac{1}{16}$ d. -8
- _____ 2. $7a^{-5}b^3$
a. $7ab^{-15}$ b. $\frac{b^3}{7a^5}$ c. $\frac{7b^3}{a^5}$ d. $7a^5b^{-3}$
- _____ 3. $\frac{9}{a^{-7}b^6}$
a. $\frac{63a}{b^6}$ b. $\frac{9}{a^7b^6}$ c. $\frac{9}{ab^{-}}$ d. $\frac{9a^7}{b^6}$
- _____ 4. $12^{-3} \cdot 12^{10} \cdot 12^0$
a. 36^7 b. 1728^7 c. 1 d. 12^7
- _____ 5. $(k^2)^4$
a. k^6 b. $2k^8$ c. k^{16} d. k^8
- _____ 6. $(5k^2)^3$
a. $125k^6$ b. $125k^5$ c. $5k^6$ d. $5k^8$
- _____ 7. $(-5g^5h^6)^2(g^4h^2)^4$
a. $25g^{26}h^{20}$ b. $\frac{g^{26}h^{20}}{25}$ c. $-25g^{26}h^{20}$ d. $25g^{15}h^{14}$
- _____ 8. $\frac{x^{14}}{x^7}$
a. x^7 b. x^{98} c. $\frac{1}{x^7}$ d. x^{21}
- _____ 9. $\frac{m^{-6}n^{-3}}{m^{-13}n^{-1}}$
a. $\frac{n^{-9}}{n^{-14}}$ b. m^3n^{12} c. $\frac{m^7}{n^2}$ d. m^7n^2

___ 10. $\left(\frac{3x}{2}\right)^4$

a. $\frac{81x^4}{16}$ b. $6x^4$ c. $\frac{12x^4}{8}$ d. $\frac{81x^4}{2}$

___ 11. Write $4 \cdot 10^{-3}$ as a decimal.

a. 0.4 b. 0.004 c. -120 d. 4,000

Simplify the expression. Write the answer using scientific notation.

___ 12. $8(8.8 \times 10^{12})$

a. 70.4×10^{12} b. 70.4×10^{24} c. 7.04×10^{13} d. 1.68×10^{13}

___ 13. Astronomers measure large distances in light-years. One light-year is the distance that light can travel in one year, or approximately 5,880,000,000,000 miles. Suppose a star is 13.6 light-years from Earth. In scientific notation, how many miles away is it?

a. 1.36×10^{12} miles c. 7.9968×10^{13} miles
 b. 5.88×10^{12} miles d. 5.88×10^{13} miles

___ 14. $(9 \times 10^7)(7 \times 10^9)$

a. 6.3×10^{64} b. 6.3×10^{17} c. 1.6×10^{64} d. 1.6×10^{17}

___ 15. $(4 \times 10^8)^{-2}$

a. 6.25×10^{-17} b. 6.25×10^{-18} c. 0.0625×10^{-16} d. -8×10^{-16}

Complete the equation, by supplying the missing exponent.

___ 16. $3^{\blacksquare} \cdot 3^{-6} = 3^2$

a. -8 b. -3 c. 8 d. 4

Find the common ratio of the sequence.

___ 17. -164, -82, -41, -20.5, ...

a. -82 b. 2 c. $\frac{1}{2}$ d. 82

___ 18. Find the next three terms of the sequence 3, 9, 27, 81, ...

a. -243, -729, -2187 c. 81, 243, 729
 b. 243, 729, 2187 d. 87, 249, 87

Evaluate the function rule for the given value.

___ 19. $y = 15 \cdot 3^x$ for $x = -3$

a. $\frac{5}{27}$

b. $\frac{5}{3}$

c. $\frac{5}{9}$

d. -135

___ 20. Suppose a population of 250 crickets doubles in size every 6 months. How many crickets will there be after 2 years?

a. 4,000 crickets

c. 2,000 crickets

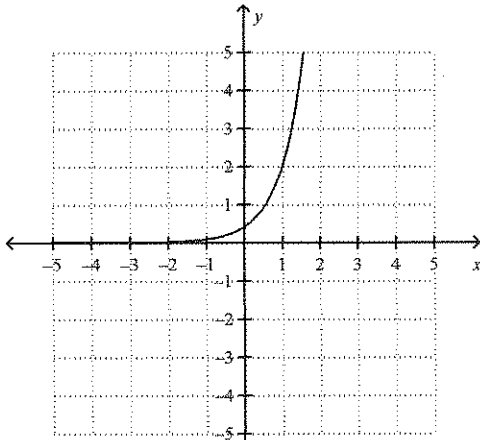
b. 6,000 crickets

d. 1,000 crickets

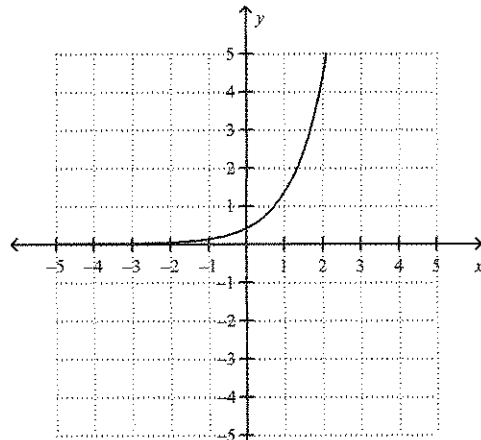
Match the function rule with the graph of the function.

___ 21. $y = \frac{2}{5} \cdot 5^x$

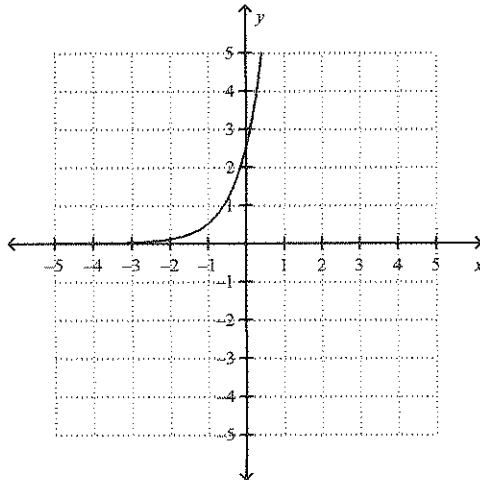
a.



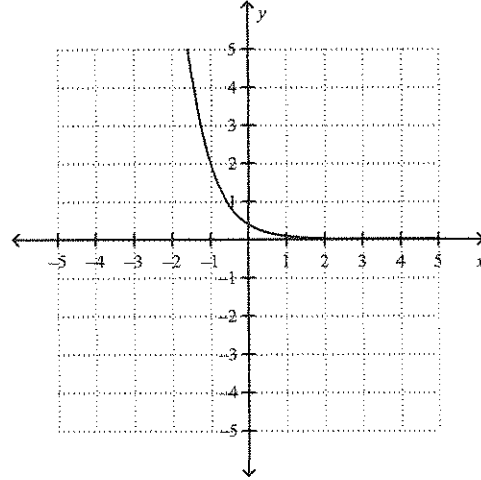
c.



b.



d.



- _____ 22. Suppose the population of a town is 2,700 and is growing 4% each year.
- Write an equation to model the population growth.
 - Predict the population after 12 years.
- $y = 4 \cdot 2,700^x$; about 129,600 people
 - $y = 2,700 \cdot 4^x$; about 4,323 people
 - $y = 2,700 \cdot 1.04^x$; about 4,323 people
 - $y = 2,700 \cdot 4^x$; about 45,298,483,200 people

Find the balance in the account.

- _____ 23. \$3,800 principal earning 2%, compounded quarterly, after 7 years
- \$4,369.52
 - \$4,365.01
 - \$64,926.56
 - \$108,528.00
- _____ 24. Suppose a laboratory has a 26 g sample of polonium-210. The half-life of polonium-210 is about 138 days.
- How many half-lives of polonium-210 occur in 276 days?
 - How much polonium is in the sample 276 days later?
- 2; 6.5 g
 - 3; 3.25 g
 - 2; 13 g
 - 2; 1,794 g
- _____ 25. A boat costs \$15,500 and decreases in value by 10% per year. How much will the boat be worth after 5 years?
- \$9,152.6
 - \$15,450
 - \$8,237.34
 - \$24,962.91