

Chapter 7 Test, Form 2A

SCORE _____

Write the letter for the correct answer in the blank at the right of each question.

1. Simplify $(x^3)^8$.
 A x^{24} B x^{11} C $8x^{24}$ D $8x^{11}$ 1. A
2. Simplify $(-2hk)^4(4h^3k^5)^2$.
 F $2h^{24}k^{40}$ G $-64h^9k^{11}$ H $-256h^{10}k^{14}$ J $256h^{10}k^{14}$ 2. J
3. Simplify $\frac{36b^4c^2}{9b^{-1}c^5}$. Assume the denominator is not equal to zero.
 A $\frac{27b^4}{c^3}$ B $\frac{4b^4}{c^3}$ C $\frac{27b^3}{c^3}$ D $\frac{4b^5}{c^3}$ 3. D
4. Simplify $\frac{(3y^4n^6)^2}{(y^2n^{-3})^4}$. Assume the denominator is not equal to zero.
 F $\frac{9}{y^{16}}$ G $\frac{9}{n^{24}}$ H $9y^{16}$ J $9n^{24}$ 4. J
5. Which monomial represents the number of square units in the area of a circle with radius $4x^3$ units?
 A $16\pi x^6$ B $8\pi x^6$ C $16\pi x^9$ D $8\pi x^5$ 5. A
6. Express 46,100,000 in scientific notation.
 F 4.61×10^7 G 4.61×10^6 H 4.61×10^5 J 4.61×10^8 6. F
7. Evaluate $\frac{7 \times 10^4}{1.4 \times 10^{-5}}$.
 A 5×10^9 B 5×10^{-20} C 5×10^{-1} D 5×10^1 7. A
8. **ATTENDANCE** The total attendance for a professional baseball team this season was 3.24×10^6 and two years ago was 2.43×10^6 . About how many times as large was this season's attendance as attendance two years ago?
 F 0.8 G 0.9 H 1.1 J 1.3 8. J
9. Write $10y^{\frac{1}{2}}$ in radical form.
 A $\sqrt{10y}$ B $10\sqrt{y}$ C $10\sqrt{10y}$ D $y\sqrt{10}$ 9. B
10. Evaluate $81^{\frac{3}{4}}$.
 F 3 G 9 H 27 J 243 10. H
11. Solve $5^{x-2} = 125$.
 A 2 B 3 C 4 D 5 11. D

Chapter 7 Test, Form 2A *(continued)*

12. Which is the equation for the n th term of the geometric sequence $-4, 8, -16, \dots$?

F $a_n = -4 \cdot 2^{n-1}$

H $a_n = -4 \cdot (-2)^{n-1}$

G $a_n = -2 \cdot (-4)^{n-1}$

J $a_n = -2 \cdot 4^n$

12. **H**

13. Which equation represents exponential growth?

A $y = 5(0.84)^x$

B $y = 5x$

C $y = 0.3x^3$

D $y = 5(1.06)^x$

13. **D**

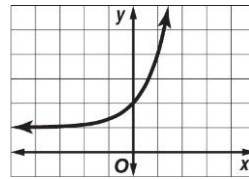
14. Which equation corresponds to the graph shown?

F $y = (3)^x + 1$

H $y = 2(3^x)$

G $y = 2(3^x + 1)$

J $y = (2 \cdot 3)^x + 1$



14. **F**

15. A weightlifter can increase the weight $W(x)$ that she can lift according to $W(x) = 315(1.05)^x$, where x represents the number of training cycles completed. How much will she lift after 4 training cycles?

A 365 lb

B 383 lb

C 378 lb

D 402 lb

15. **B**

16. **BIOLOGY** A certain fast-growing bacteria increases 6% per minute. If there are 100 bacteria now, about how many will there be 12 minutes later?

F 172

G 201

H 48

J 190

16. **G**

17. **POPULATION** A city's population is about 954,000 and is decreasing at an annual rate of 0.1%. Predict the population in 50 years.

A 577,176

B 906,300

C 1,002,888

D 907,450

17. **D**

18. Find the third term of the sequence in which $a_1 = 7$ and $a_n = -2a_{n-1} + 11$, if $n \geq 2$.

F -23

G -3

H 5

J 17

18. **J**

19. Find an explicit formula for $a_1 = -4$, $a_n = a_{n-1} + 9$, $n \geq 2$.

A $a_n = 9n - 13$

C $a_n = 9n - 4$

B $a_n = n + 9$

D $a_n = -4n + 9$

19. **A**

20. Find a recursive formula for the arithmetic sequence 24, 32, 40, 48,

F $a_1 = 24, a_n = 8a_{n-1}, n \geq 2$

H $a_1 = 24, a_n = \frac{4}{3}a_{n-1}, n \geq 2$

G $a_1 = 24, a_n = \frac{1}{2}a_{n-1} + 20, n \geq 2$

J $a_1 = 24, a_n = a_{n-1} + 8, n \geq 2$

20. **J**

Bonus Simplify $\frac{7^{x-3}}{7^{3x-1}}$.

B. 7^{-2x-2}