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Chapter 7 Test Review

1. Simplify $(x^3)^8$.

A x^{24} **B** x^{11} **C** $8x^{24}$ **D** $8x^{11}$

2. Simplify $(-2xy^2)^4(2x^3y^4)^2$.

F $4x^{24}y^{32}$ **G** $-8x^9y^6$ **H** $64x^{10}y^{16}$ **J** $-4x^{10}y^{16}$

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** $\frac{4b^5}{c^3}$

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** $9n^{24}$

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** $8\pi x^5$

6. Express 8,450,000 in scientific notation.

F 8.45×10^4 **G** 8.45×10^7 **H** 8.45×10^5 **J** 8.45×10^6

7. Evaluate $\frac{-7 \times 10^4}{4 \times 10^{-5}}$.

A 5×10^9 **B** 5×10^{-20} **C** 5×10^{-1} **D** 5×10^1

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

9. Write $(8x)^{\frac{1}{2}}$ in radical form.

A $8\sqrt{x}$ **B** $\sqrt{8x}$ **C** $8\sqrt{8x}$ **D** $x\sqrt{8}$

10 Evaluate $16^{\frac{3}{4}}$.

F 2 **G** 4 **H** 8 **J** 32

11. Solve $5^{x-2} = 125$.

A 2 **B** 3 **C** 4 **D** 5

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12. Which is the equation for the nth term of the geometric sequence –4, 8, –16, ... ?

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

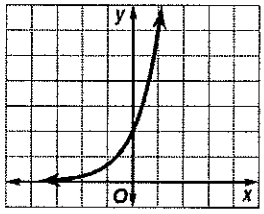
13. Which equation represents exponential growth?

A $y = 5(0.84)^x$ **B** $y = 5x$ **C** $y = 0.3x^3$ **D** $y = 5\ (1.06)^x$

14. Which equation corresponds to the graph shown?

F $y = 3^x + 2$ **H** $y = 2(3^x)$

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



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

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

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

18. Find the third term of the sequence in which $a_1 = -1$ and $a_n = 5a_{n-1} - 3$, if $n \geq 2$.

F –218 **G** –43 **H** –8 **J** 12

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** $a_n = -4n + 9$

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