NAME	DATE		PERIOD
Chapter 7 Test, Form	2D		SCORE
Simplify.			
1. $(3a^2b^5)(-2ab^3)$		1	-6 <i>a</i> ³ <i>b</i> ⁸
2. $(w^3 z^7)^3$		2	w ⁹ z ²¹
3. $4a^4b^8 + 2(ab^2)^4 + 4(a^2b^4)^2$		3	10 <i>a</i> ⁴ <i>b</i> ⁸
Simplify. Assume that no denominator is equ	al to zero.		-
$4. \frac{4a^{-3}d^2}{8a^2d^{-5}}$		4	$\frac{d'}{2a^5}$
5. $\frac{(3r^3t^5)^3}{(-3r^2t^7)^2}$		5	3r ⁵ t
Simplify each expression.		6	$5x y \sqrt{2x}$
6. $\sqrt{50x^3y^2}$ 7. $\frac{5\sqrt{2}}{\sqrt{10}-3}$		7	10√5 + 15 √2
8. Describe how the graph of $g(x) = 5(2^x)$ is rel	ated to the graph of $f(x) = 2^x$.	g 8	(x) is stretched vertically.
9. Fungi A has a growth rate of 3.55% per mingrowth rate of 0.06% per second. Which fur how much?	ute, while Fungi B has a agus grows at a faster rate? By	9 0. *	Fungi B; I1% per minute
Solve each equation.			
10. $125^{x-1} = 5$		10	$\frac{4}{3}$
11. $3^{3x+1} = 81$		11	1
12. $64^{2x+3} = 2$		12	$-\frac{17}{12}$

14.

16. __

17.

15. $\sqrt[4]{57}$

32

 $10\sqrt[3]{x}$

about 185 lb

Chapter 7 Test, Form 2D (continued)

Simplify.

13. $1000^{\frac{2}{3}}$	13	100	
5			

Write each expression in radical form.

15. $57^{\frac{1}{4}}$

14. $4^{\frac{3}{2}}$

16. $10x^{\frac{1}{3}}$

- 17. A weight lifter can bench-press 145 pounds. She plans to increase the weight W(x) in pounds that she is bench-pressing according to the function $W(x) = 145(1.05)^x$, where x represents the number of training cycles she completes. How much will she bench-press after 5 training cycles?
- **18.** Graph $y = \left(\frac{1}{6}\right)^x$. Find the y-intercept and state the domain and range.
- 19. ART An oil painting originally cost \$2500 and increases in value at a rate of 6% per year. Find the value of the painting after 12 years.
- **20.** CARS A new car valued at \$16,500 depreciates at a steady rate of 12% per year. What is the value of the car in 10 years?
- **21.** Write an equation for the *n*th term of the geometric sequence 4, 8, 16,

Find the first three terms of each sequence.

22.
$$a_1 = -4$$
, $a_n = a_{n-1} + 7$, $n \ge 2$

23. $a_1 = 1, a_n = 4a_{n-1} - 2, n \ge 2$

Write a recursive formula for each sequence.

24. 27, 19, 11, 3, ...

- **25.** 1296, 216, 36, 6, ...
- **Bonus** Find the first term of the geometric sequence with $a_5 = 625$ and $a_6 = 3125$.

