

PRACTICE TEST 6

CHAPTER 12

NAME _____

TEST FORM H

CLASS _____ SCORE _____ GRADE _____

1. Find $(f \circ g)(x)$ if $f(x) = -x + x^2$ and $g(x) = 2x - 3$.

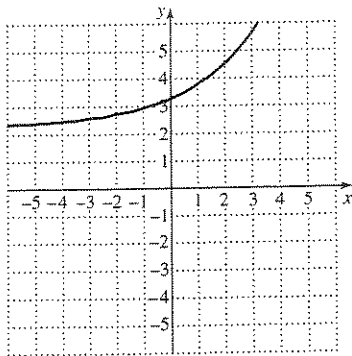
- a) $-4x^2 - 15x - 12$ b) $3x^2 - 3x - 2$
 c) $-9x^2 - 15x - 6$ d) $4x^2 - 14x + 12$

2. Find a formula for the inverse of $g(x) = \left(\frac{x-5}{2}\right)^3$.

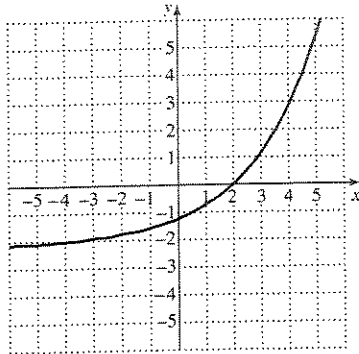
- a) $g^{-1}(x) = 2\sqrt[3]{x} + 5$ b) $g^{-1}(x) = 2\sqrt[3]{2x} + 1$
 c) $g^{-1}(x) = 3\sqrt[3]{2x} - 1$ d) $g^{-1}(x) = 3\sqrt[3]{x} - 5$

3. Which graph represents $f(x) = \left(\frac{3}{2}\right)^x - \frac{9}{2}$?

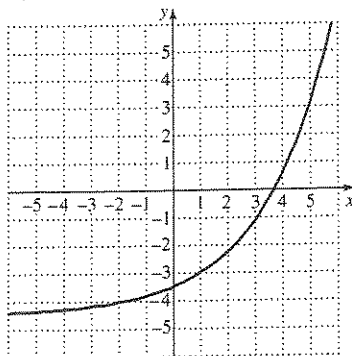
a)



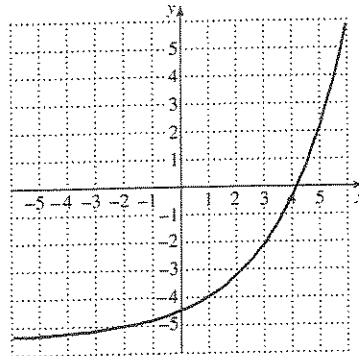
b)



c)



d)



4. Simplify $\log_2 64$.

- a) 6 b) 3 c) 5 d) 2

ANSWERS

1. _____

2. _____

3. _____

4. _____

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ANSWERS	
5. _____	5. Convert to a logarithmic equation: $4^{-2} = \frac{1}{16}$. a) $\log_6 \frac{1}{16} = -3$ b) $\log_6 \frac{1}{216} = -3$ c) $\log_4 \frac{1}{16} = -2$ d) $\log_4 \frac{1}{216} = -2$
6. _____	6. Convert to a logarithmic equation: $196^{1/2} = 14$. a) $\log_{196} 14 = \frac{1}{2}$ b) $\log_{289} 14 = \frac{1}{2}$ c) $\log_{289} 17 = \frac{1}{2}$ d) $\log_{196} 17 = \frac{1}{2}$
7. _____	7. Convert to an exponential equation: $m = \log_8 81$. a) $8^m = 64$ b) $9^m = 81$ c) $9^m = 64$ d) $8^m = 81$
8. _____	8. Convert to an exponential equation: $\log_{16} 256 = 2$. a) $2^4 = 16$ b) $27^4 = 16$ c) $3^3 = 27$ d) $16^2 = 256$
9. _____	9. Express in terms of logs of a , b , and c : $\log \frac{a^2 b}{c^{1/3}}$. a) $2 \log a + \log b - 3 \log c$ b) $\log a + \frac{1}{2} \log b - \frac{1}{3} \log c$ c) $\log a + 2 \log b - \frac{1}{3} \log c$ d) $2 \log a + \log b - \frac{1}{3} \log c$
10. _____	10. Express as a single logarithm: $4 \log_a x - 3 \log_a z$. a) $\log_a \frac{x^4}{z^3}$ b) $\log_a \frac{x^{3/4}}{z^3}$ c) $\log_a \frac{x^2}{z^3}$ d) $\log_a \frac{x^2}{z^{1/2}}$

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				ANSWERS		
11.	Simplify: $\log_u u$.	a) w	b) 1	c) v	d) 0	11. _____
12.	Simplify: $\log_t t^{0.1}$.	a) 0.1	b) t	c) 0.01	d) 100	12. _____
13.	Simplify: $\log_n 1$.	a) 0	b) 1	c) h	d) g	13. _____
14.	Given $\log_a 4 = 1.386$, $\log_a 5 = 1.609$, and $\log_a 6 = 1.792$, find $\log_a 100$.	a) 4.604	b) 3.584	c) 4.787	d) 3.218	14. _____
15.	What is the range of $f(x) = e^x + 3$?	a) $(3, \infty)$	b) $(-\infty, 3)$	c) $(1, \infty)$	d) $(-\infty, 1)$	15. _____
16.	What is the domain of $g(x) = \ln(x - 2)$?	a) $(-2, 2)$	b) $(-2, \infty)$	c) $(2, \infty)$	d) $(-\infty, 2)$	16. _____
17.	Solve: $4^x = \frac{1}{256}$.	a) 4	b) -3	c) -4	d) 3	17. _____
18.	Solve $\log_x 16 = 2$.	a) 16	b) 4	c) 9	d) 3	18. _____
19.	Solve: $\log_{324} x = \frac{1}{2}$.	a) 9	b) 10	c) 18	d) 3	19. _____

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ANSWERS	
20. _____	20. Solve: $4^x = 2.4$. Give exact answer in terms of common logarithms. a) $\frac{\log 2.3}{\log 5}$ b) $\frac{\log 2.4}{\log 4}$ c) $\frac{\log 4}{\log 2.4}$ d) $\frac{\log 5}{\log 2.3}$
21. _____	21. Solve and give answer to the nearest ten-thousandth: $\ln x = \frac{13}{8}$. a) 5.0789 b) 6.5208 c) 6.5272 d) 5.0784
22. _____	22. Solve: $\log(x-6) + \log(x+3) = \log 10$. a) 2 b) 4 c) 5 d) 7
23. _____	23. The population in India in 2000 was 1.014 billion, and was growing exponentially by 1.58 % per year. When will India's population reach 1.5 billion? a) 2017 b) 2025 c) 2031 d) 2022
24. _____	24. How old is an animal bone that has lost 22 % of its carbon-14? (Use $P(t) = P_0 e^{-0.00012t}$.) a) 1860 yrs b) 2070 yrs c) 3080 yrs d) 4290 yrs
25. _____	25. An investment with interest compounded continuously doubled itself in 10 yrs. What is the interest rate? a) 6.93 % b) 4.32 % c) 8.66 % d) 7.25 %

Chapter 12, Test Form H

1. d 2. a 3. c 4. a 5. c 6. a 7. d 8. d 9. d 10. a 11. b 12. a 13. a
14. a 15. a 16. c 17. c 18. b 19. c 20. b 21. d 22. d 23. b 24. b 25. a