Quiz 3 Preparation Ch 5.1, 5.2, 5.3, & 5.4 v02
There will be EIGHT questions chosen from below.
No Book/No Notes/No Ipod/No Phone/Yes Calculator 20 minutes
Summer 2012

Name_____

Solve the problem.

1) Complete the table below by using the table of values for f to complete the table of values for f^{-1}.

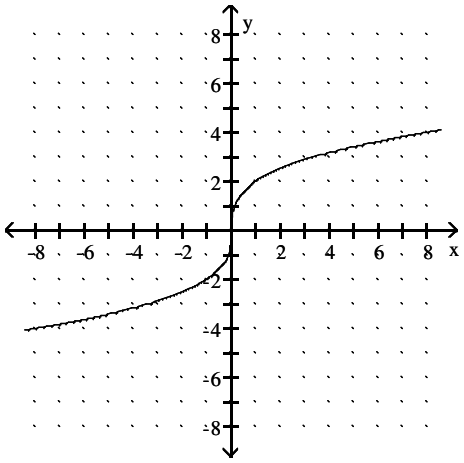
x	f(x)
1	21
2	17
3	13
4	9

x	$f^{-1}(x)$
9	
13	
17	
21	

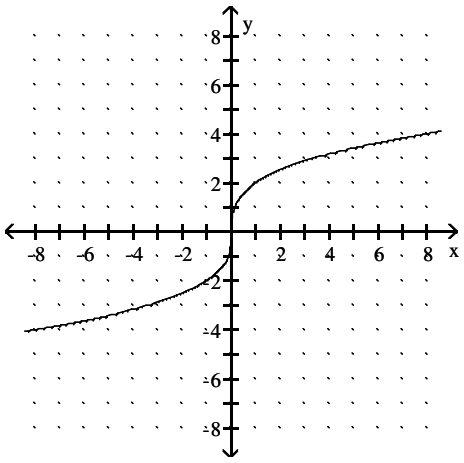
2) Let $f(x) = 3^x$.
   i) Find f(3).
   ii) Find $f^{-1}(3)$.
   iii) Find x when f(x) = 9.
   iv) Find x when $f^{-1}(x) = 9$.

Refer to the graph of the invertible function g to solve the problem.

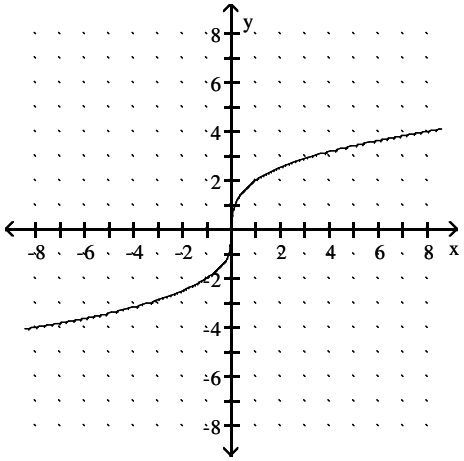
3) Find $g^{-1}(4)$



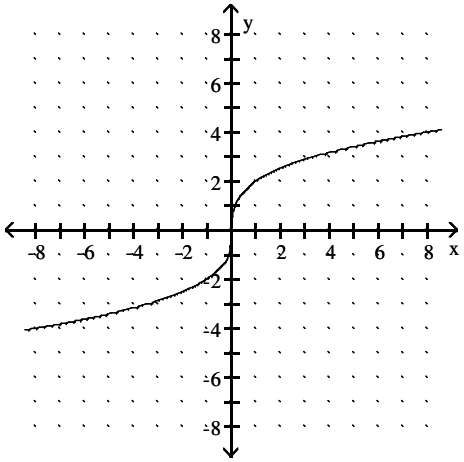
4) Find g(0)



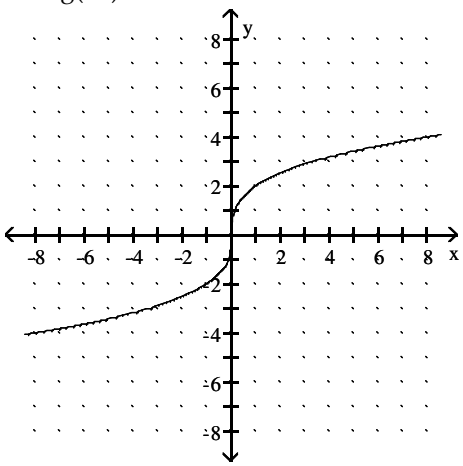
5) Find $g^{-1}(2)$



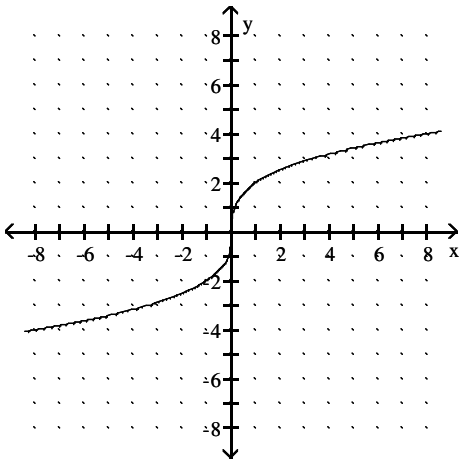
6) Find $g^{-1}(-2)$



7) Find $g(-8)$

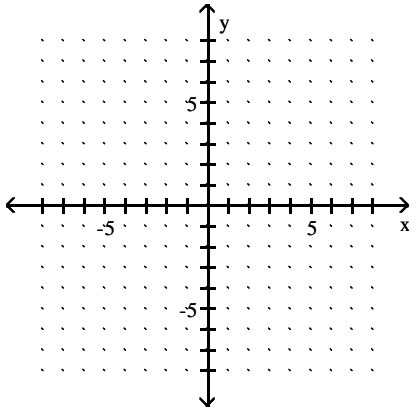


8) Find $g^{-1}(0)$

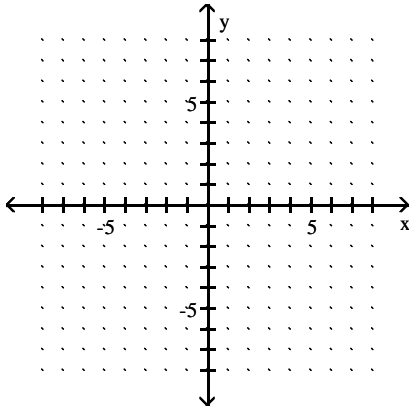


Sketch the graph of the given function, its inverse, and y = x on the same set of axes. Graph the function with a solid line, and graph y = x and the function's inverse using dotted lines.

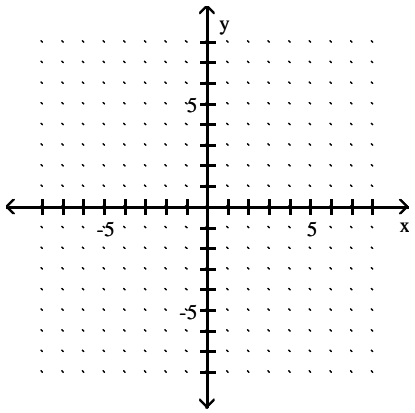
9) $f(x) = 4(7)^x$



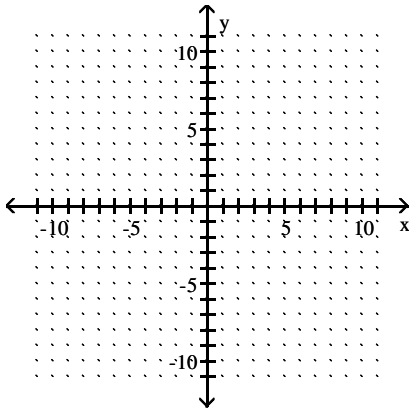
10) $f(x) = 5(7)^x$



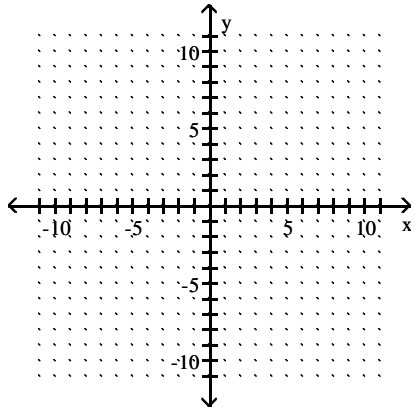
11) $f(x) = 2(8)^x$



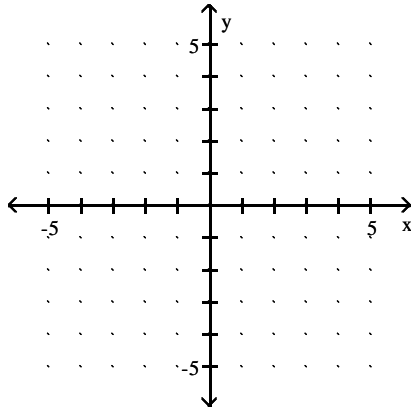
12) $f(x) = 4x$



13) $f(x) = \frac{1}{2}x - 2$



14) $f(x) = 4(\frac{1}{5})^x$



Find the inverse of the given function.

15) $f(x) = x - 8$

16) $f(x) = x - 9$

17) $f(x) = -9x$

18) $f(x) = -12x$

19) $f(x) = 2x - 1$

20) $f(x) = -8x - 1$

21) $f(x) = \frac{5x - 4}{7}$

22) $f(x) = \frac{2x + 5}{3}$

23) $f(x) = 3(x - 2)$

24) $f(x) = 3(x - 4)$

25) $f(x) = x^3 + 8$

26) $f(x) = x^3 + 4$

Find the logarithm.

27) $\log_3(27)$

28) $\log_3(9)$

29) $\log(1000)$

30) $\log(10{,}000)$

31) $\log_3(1)$

32) $\log_{10}(1)$

33) $\log_{10}(\sqrt{10})$

34) $\log_{11}(\sqrt{11})$

35) $\log_{5}(5)$

36) $\log_{12}(12)$

37) $\log_{5}(\frac{1}{25})$

38) $\log_{5}(\frac{1}{125})$

39) $\log_{64}(4)$

40) $\log_{125}(5)$

41) $\log_{2}(\log_{2}(16))$

42) $\log_{2}(\log_{2}(16))$

43) $\log_{b}(\sqrt{b})$

44) $\log_{b}(\sqrt{b})$

45) $\log_b(b)$

46) $\log_b(b)$

47) $\log_b(1)$

48) $\log_b(1)$

49) $\log_b\left(\frac{1}{b^2}\right)$

50) $\log_b\left(\frac{1}{b^3}\right)$

Write the equation in exponential form. Assume that all constants are positive and not equal to 1.

51) $\log_5(25) = 2$

52) $\log_{64}(4) = \frac{1}{3}$

53) $\log_5\left(\frac{1}{25}\right) = -2$

Write the equation in logarithmic form. Assume that all constants are positive and not equal to 1.

54) $6^2 = 36$

Solve.

55) $\log_4(x - 4) = -1$

Solve. Round any approximate solution to the fourth decimal place.

56) $5^x = 125$

57) $3^x = 27$

58) $3^{x+6} = 5$

59) $5^{x+8} = 7$

60) $5^{x+7} = 3$

61) $5^{x+8} = 7$

Solve.

62) $\log_2 (x + 2) = -3$

63) $\log_2 (-8 - 4x) = 2$

64) $\log_3 (-11 - 5x) = 2$

65) $4\log_{256} (x) - 8 = -7$

66) $4\log_{625} (x) + 2 = 3$

67) $\log_7 (x^2) = 4$

68) $\log_{10}(x^2) = 4$

Write the equation in logarithmic form. Assume that all constants are positive and not equal to 1.

69) $a^d = y$

Solve the problem.

70) Jeff received a gift from his grandfather of $4000, which he invested at an annually compounded interest rate of 5%. Let V = f(t) represent the value (in dollars)of the account after t years or any fraction thereafter. Find an equation for f. What will be the value of the investment in 20 years?

71) Jeff received a gift from his grandfather of $18,000, which he invested at an annually compounded interest rate of 8%. Let V = f(t) represent the value (in dollars)of the account after t years or any fraction thereafter. Find an equation for f. What will be the value of the investment in 20 years?

72) Bianca borrowed $12,000 at a rate of 9% compounded annually. What was the total amount Bianca owed after 3 years?

73) Bianca borrowed $12,000 at a rate of 4% compounded annually. What was the total amount Bianca owed after 2 years?

1)

x	f(x)
1	21
2	17
3	13
4	9

x	$f^{-1}(x)$
9	4
13	3
17	2
21	1

2) i) 27
ii) 1
iii) 2
iv) 19,683

3) 8

4) 0

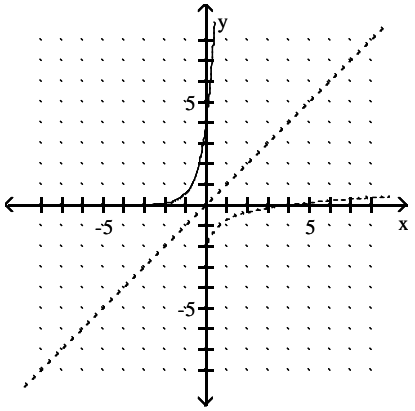
5) 1

6) –1

7) –4

8) 0

9)



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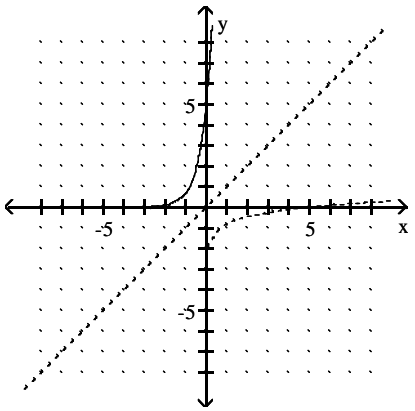

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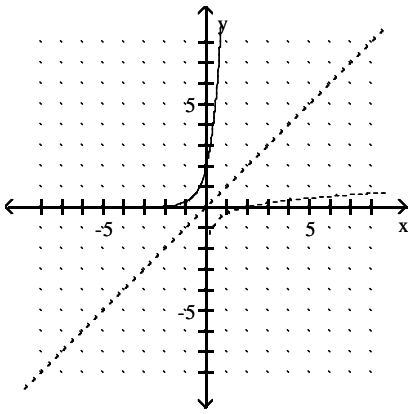

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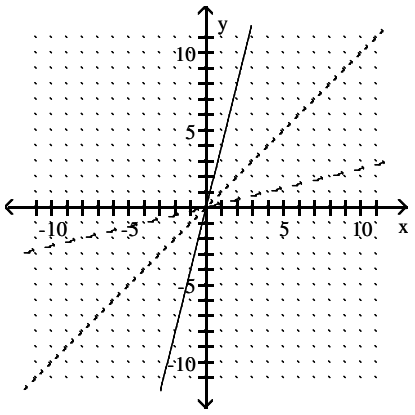
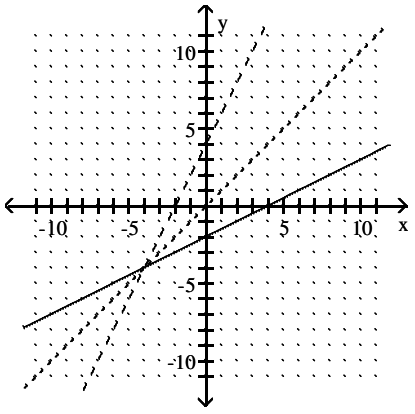
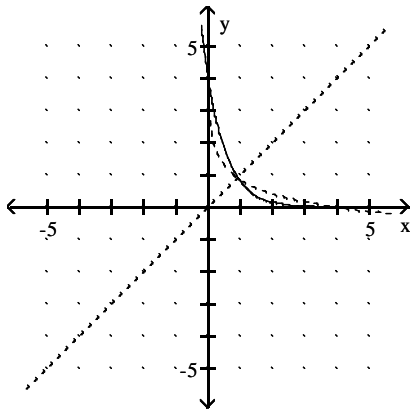


13)



14)



15) $f^{-1}(x) = x + 8$

16) $f^{-1}(x) = x + 9$

17) $f^{-1}(x) = -\frac{1}{9}x$

18) $f^{-1}(x) = -\frac{1}{12}x$

19) $f^{-1}(x) = \frac{x + 1}{2}$

20) $f^{-1}(x) = \frac{x + 1}{-8}$

21) $f^{-1}(x) = \frac{7x + 4}{5}$

22) $f^{-1}(x) = \frac{3x - 5}{2}$

23) $f^{-1}(x) = \frac{1}{3}x + 2$

24) $f^{-1}(x) = \frac{1}{3}x + 4$

25) $f^{-1}(x) = \sqrt[3]{x - 8}$

26) $f^{-1}(x) = \sqrt[3]{x - 4}$

27) 3

28) 2

29) 3

30) 4

31) 0

32) 0

33) $\frac{1}{2}$

34) $\frac{1}{2}$

35) 1

36) 1

37) –2

38) –3

39) $\frac{1}{3}$

40) $\frac{1}{3}$

41) 2

42) 2

43) $\frac{1}{2}$

44) $\frac{1}{2}$

45) 1

46) 1

47) 0

48) 0

49) –2

50) –3

51) $5^2 = 25$

52) $64^{1/3} = 4$

53) $5^{-2} = \frac{1}{25}$

54) $\log_6 (36) = 2$

55) $\frac{17}{4}$

56) 3

57) 3

58) –4.5350

59) –6.7909

60) –6.3174

61) –6.7909

62) $-\frac{15}{8}$

63) –3

64) –4

65) 4

66) 5

67) 49, –49

68) 100, –100

69) $\log_a(y) = d$

70) $V = 4000(1.05)^t$; $10,613.19

71) $V = 18,000(1.08)^t$; $83,897.23

72) $15,540.35

73) $12,979.20