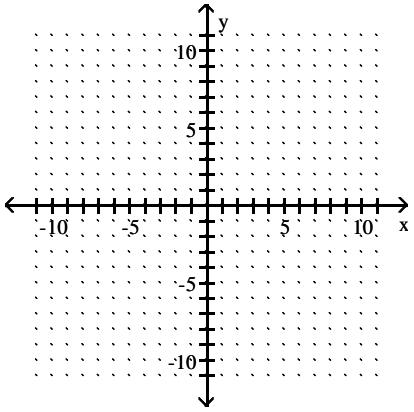
Math 098 Worksheet8.3C_GraphingLogarithmicFunctions_v01
NO BOOK/ NO NOTES/YES CALCUATOR
Fall 2017 Dressler

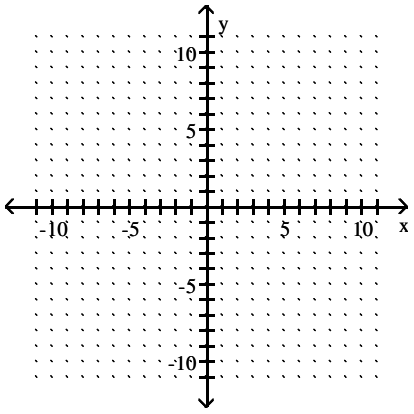
Name_____

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.

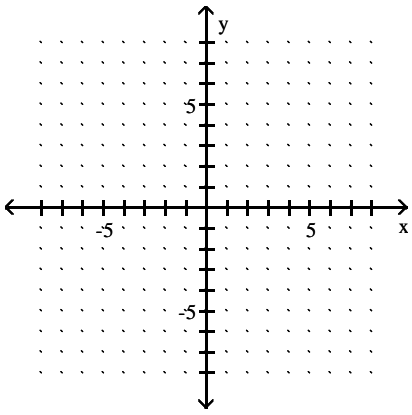
1) $f(x) = 2x$



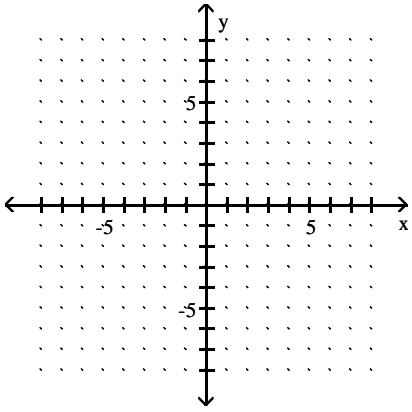
2) $f(x) = 3x$



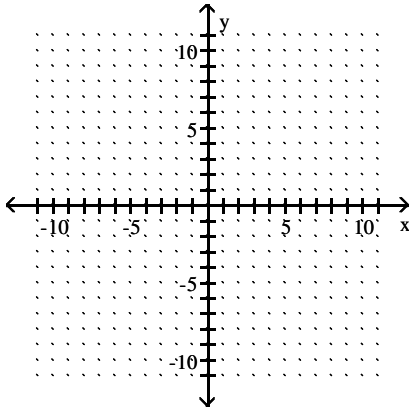
3) $f(x) = 5(8)^x$



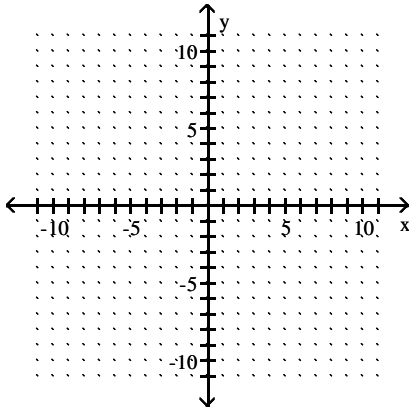
4) $f(x) = 2(4)^x$



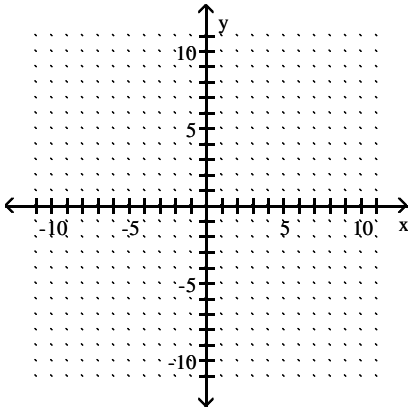
5) $f(x) = 2x + 4$



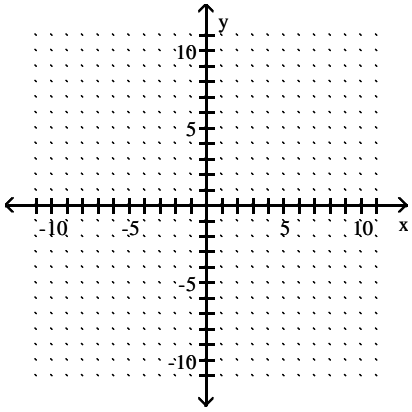
6) $f(x) = -2x + 3$



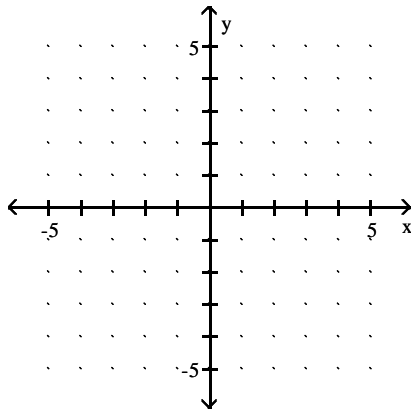
7) $f(x) = \frac{1}{2}x + 2$



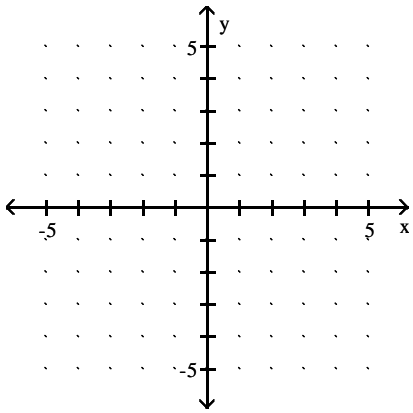
8) $f(x) = \frac{1}{2}x - 3$



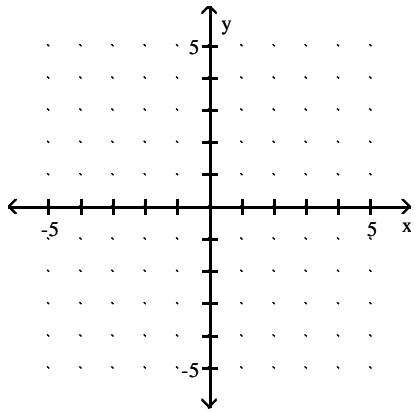
9) $f(x) = 5(\frac{1}{3})^x$



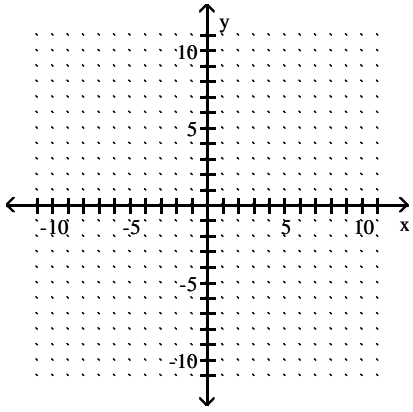
11) $f(x) = 5(\frac{1}{7})^x$



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



12) $f(x) = \frac{1}{2}x + 3$



Evaluate the expression without using a calculator.

13) $\log_7 1$

14) $\log_8 1$

15) $\log_3 1$

16) $\log_{11} 11$

17) $\log_8 8$

18) $2^{\log_2 12}$

19) $5^{\log_5 11}$

20) $4^{\log_4 12}$

21) $3^{\log_3 15}$

22) $3^{\log_3 12}$

23) $4^{\log_4 16}$

24) $\log_6 6^{19}$

25) $\log_6 6^{14}$

26) $\log_9 1$

27) $\log_9 9$

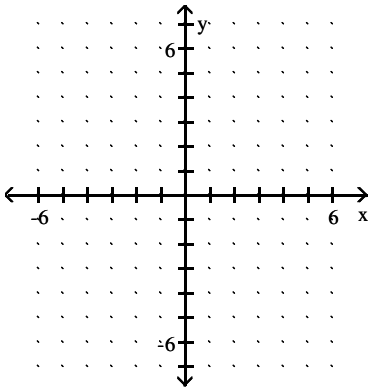
28) $\log_6 6^{10}$

29) $4^{\log_4 18}$

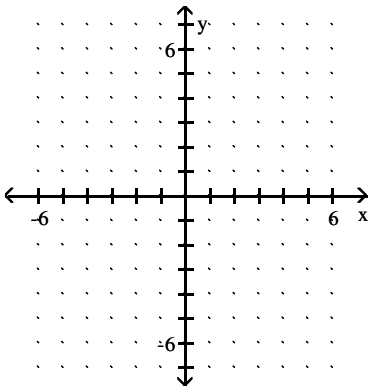
30) $\log_2 2$

Graph the functions in the same rectangular coordinate system.

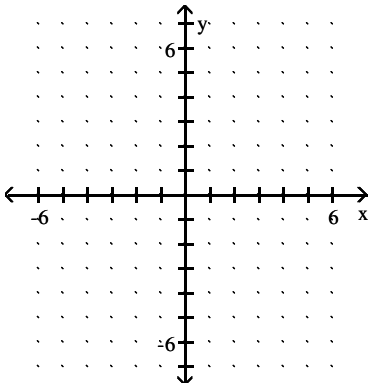
31) $f(x) = 3^x$ and $g(x) = \log_3 x$



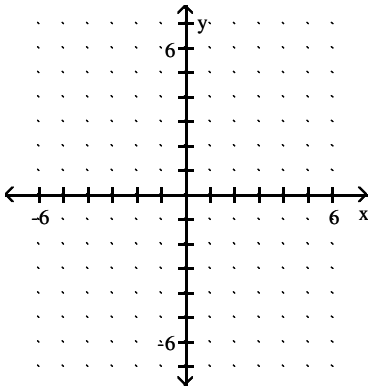
32) $f(x) = 5^x$ and $g(x) = \log_5 x$



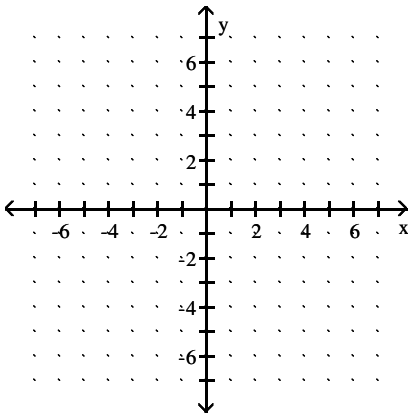
33) $f(x) = 2^x$ and $g(x) = \log_2 x$



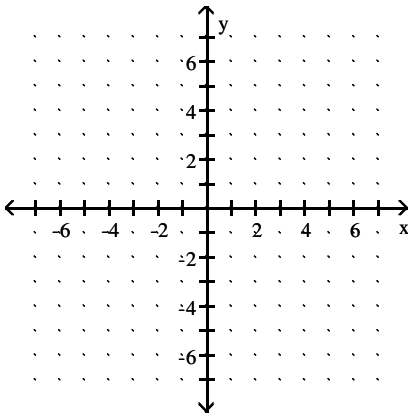
34) $f(x) = 4^x$ and $g(x) = \log_4 x$



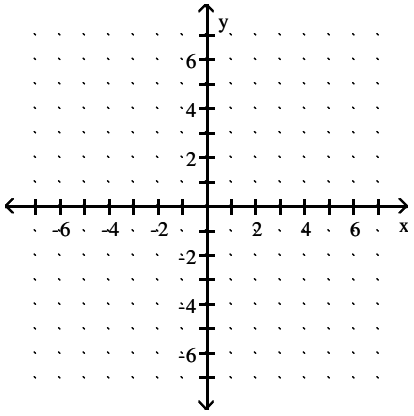
35) $f(x) = \left(\frac{1}{2}\right)^x$ and $g(x) = \log_{1/2} x$



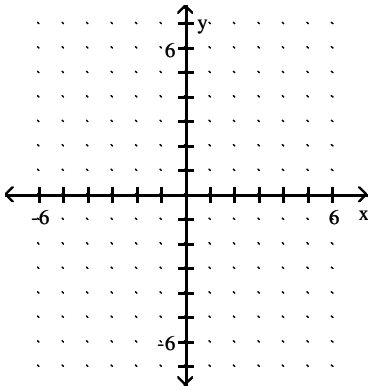
36) $f(x) = \left(\frac{1}{3}\right)^x$ and $g(x) = \log_{1/3} x$



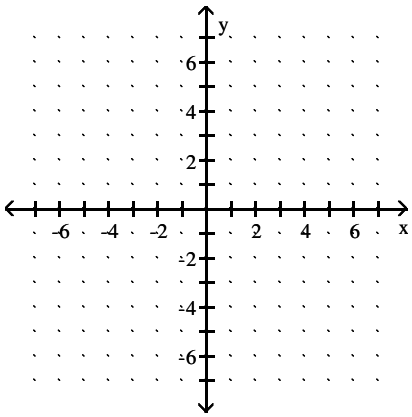
37) $f(x) = \left(\frac{1}{4}\right)^x$ and $g(x) = \log_{1/4} x$



38) $f(x) = 5^x$ and $g(x) = \log_5 x$

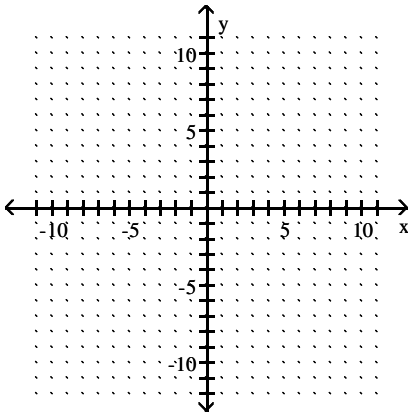


39) $f(x) = \left(\frac{1}{3}\right)^x$ and $g(x) = \log_{1/3} x$

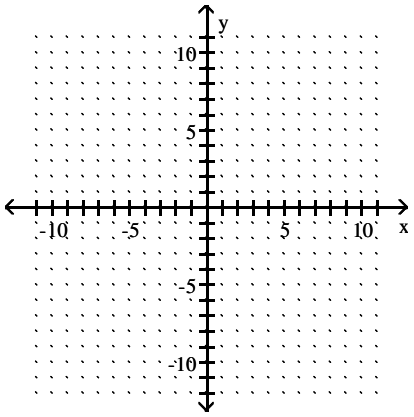


Graph the function.

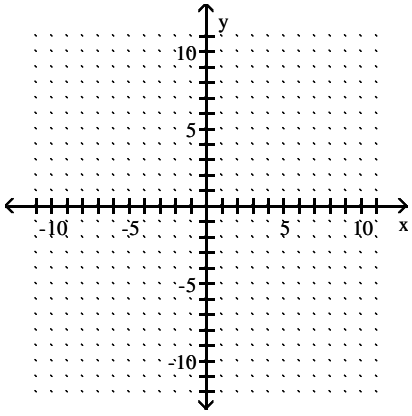
40) Use the graph of f(x) = log x to obtain the graph of g(x) = log (x + 3).



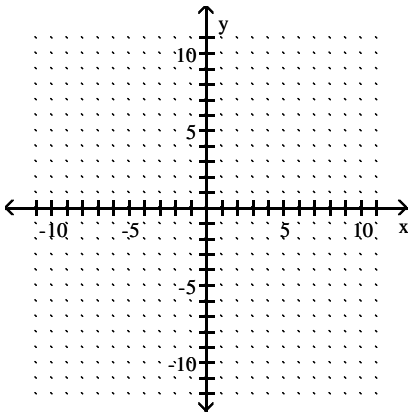
41) Use the graph of f(x) = log x to obtain the graph of g(x) = log (x + 5).



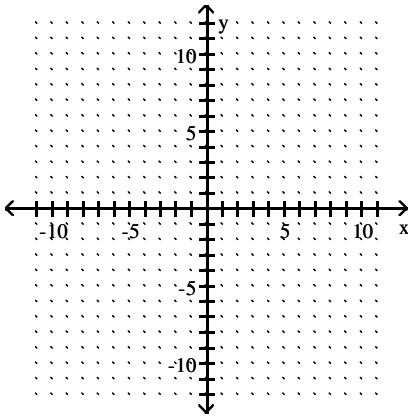
42) Use the graph of f(x) = log x to obtain the graph of g(x) = log (x + 1).



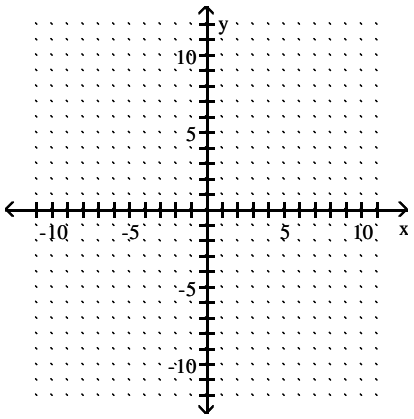
43) Use the graph of f(x) = log x to obtain the graph of g(x) = log (x – 5).



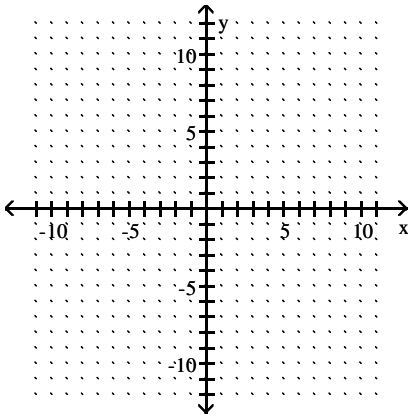
44) Use the graph of f(x) = log x to obtain the graph of g(x) = log x + 3.



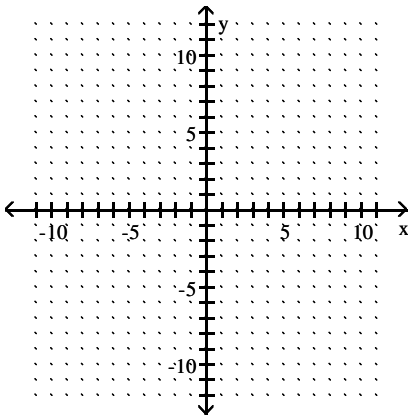
45) Use the graph of f(x) = log x to obtain the graph of g(x) = log x + 5.



46) Use the graph of f(x) = log x to obtain the graph of g(x) = log x – 4.



47) Use the graph of f(x) = log x to obtain the graph of g(x) = log x – 2.



Find the domain of the logarithmic function.

48) $f(x) = \log_8 (x + 2)$

49) $f(x) = \log_2 (x + 4)$

50) $f(x) = \log_8 (x + 4)$

51) $f(x) = \log_3 (x - 1)$

52) $f(x) = \log_4 (x - 5)$

53) $f(x) = \ln (1 - x)$

54) $f(x) = \ln (7 - x)$

55) $f(x) = \ln (4 - x)$

56) $f(x) = \ln (5 - x)$

57) $f(x) = \ln (3 - x)$

58) $f(x) = \log_9 (x - 7)^2$

59) $f(x) = \log_6 (x - 8)^2$

60) $f(x) = \log_2 (x + 8)^2$

61) $f(x) = \log_5 (x + 1)^2$

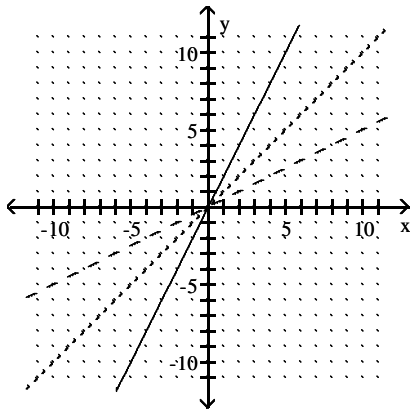
62) $f(x) = \log (x^2 - 13x + 36)$

63) $f(x) = \log (x^2 - 9x + 14)$

64) $f(x) = \log\left(\frac{x + 7}{x - 9}\right)$

65) $f(x) = \log\left(\frac{x + 8}{x - 8}\right)$

1)



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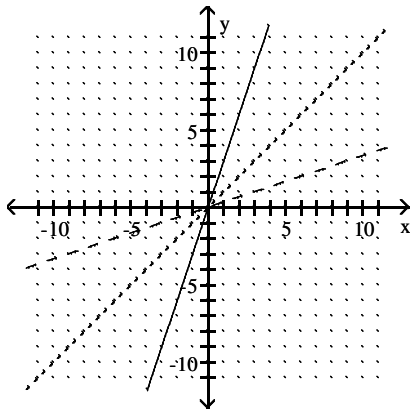

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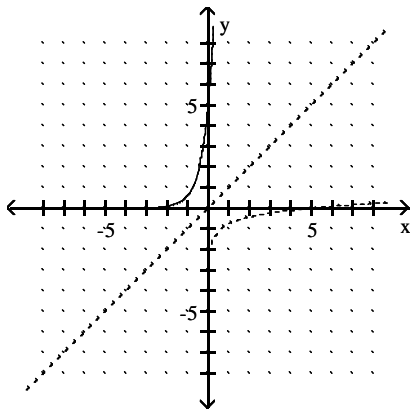

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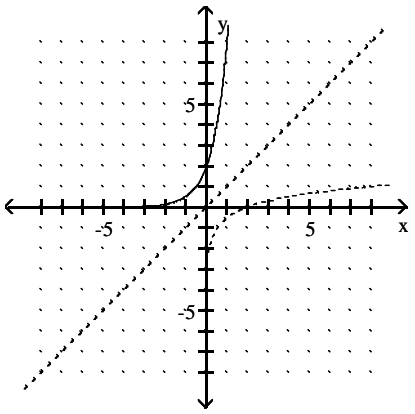

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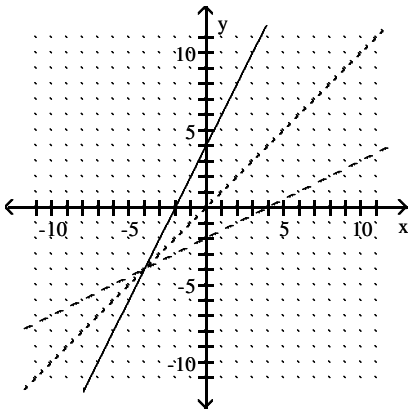
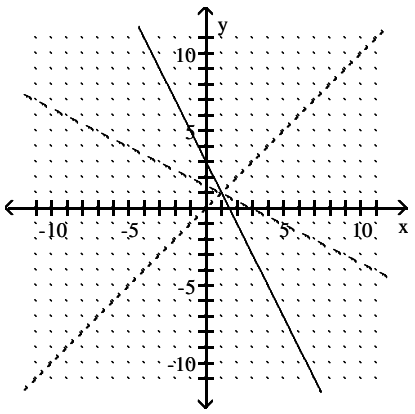
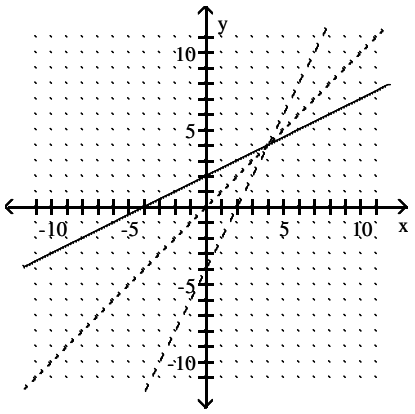


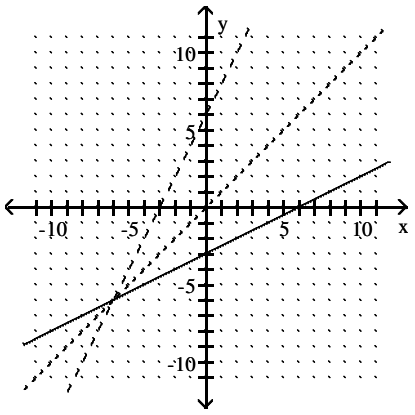
6)



7)



8)



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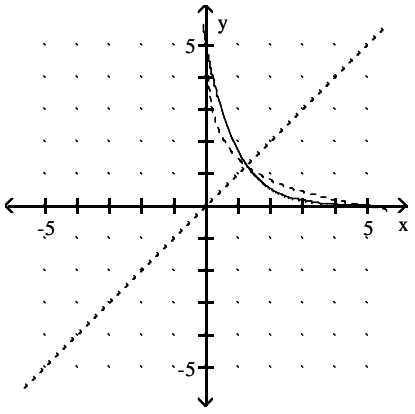
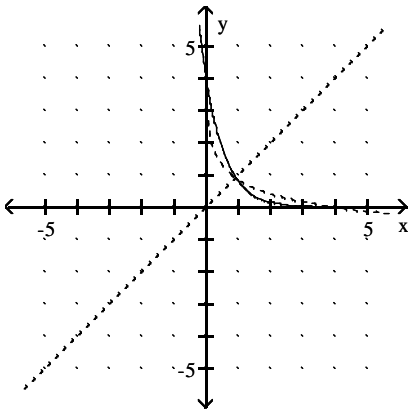
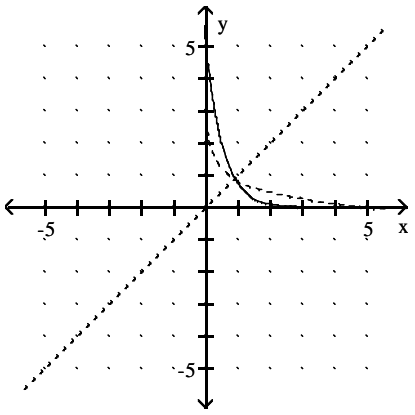


10)



11)



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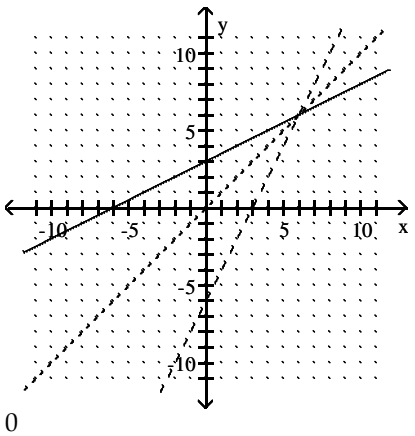
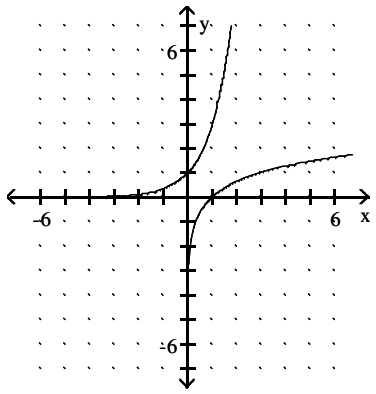


13) 0
14) 0
15) 0
16) 1
17) 1
18) 12
19) 11
20) 12
21) 15
22) 12
23) 16

24) 19
25) 14
26) 0
27) 1
28) 10
29) 18
30) 1
31)



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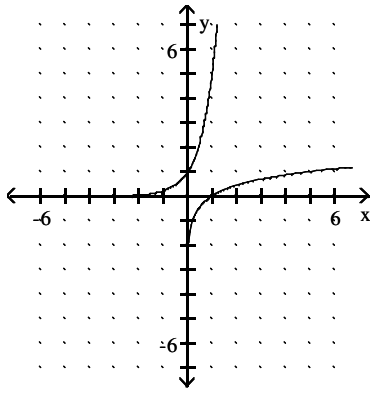

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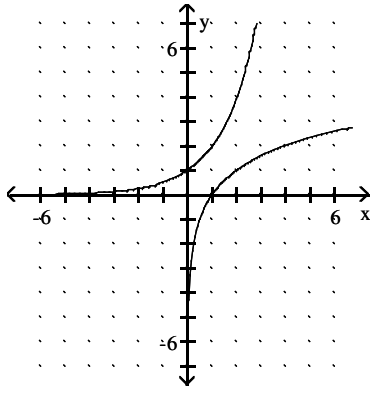
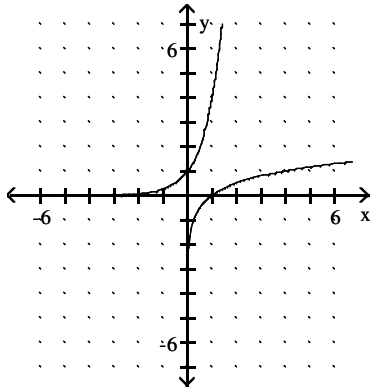


34)



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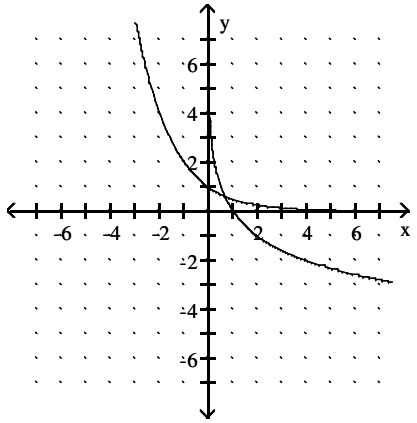
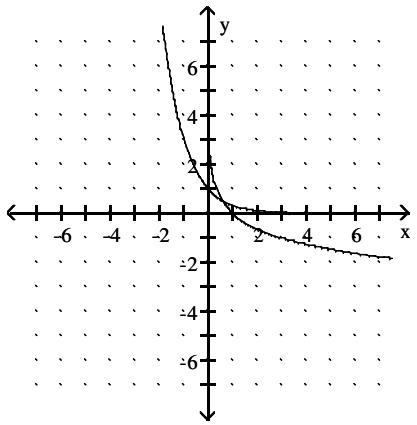


36)



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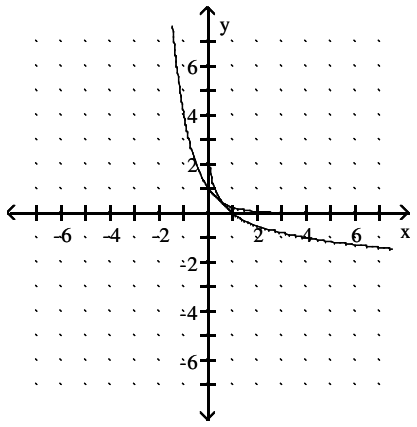
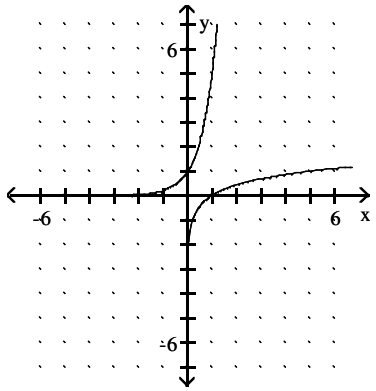


38)



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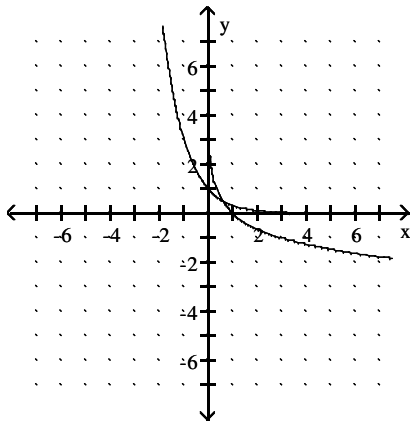
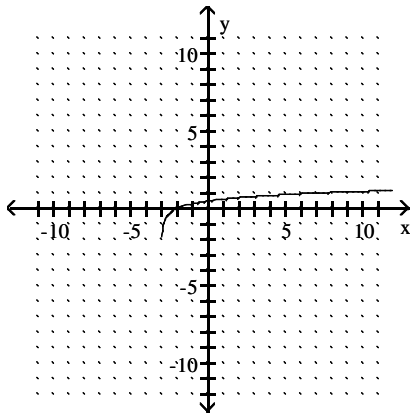
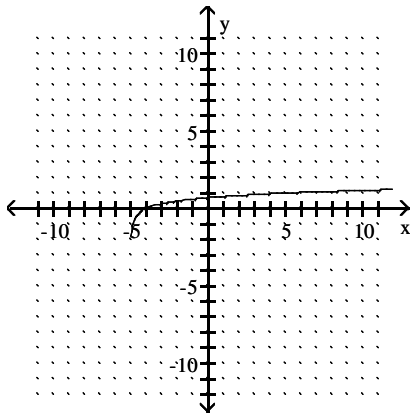


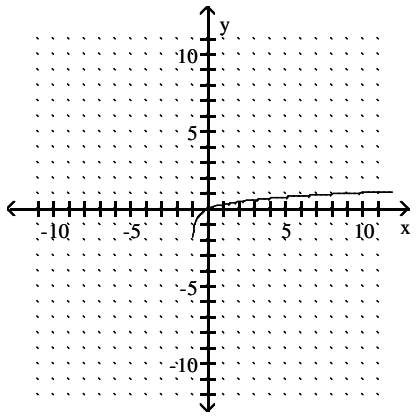
40)



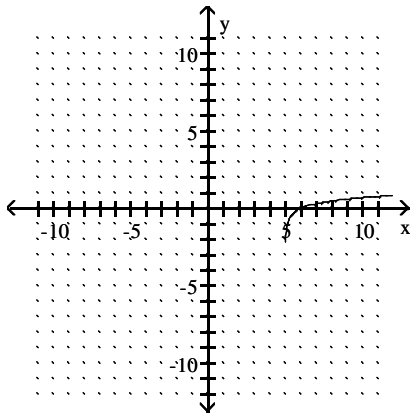
41)



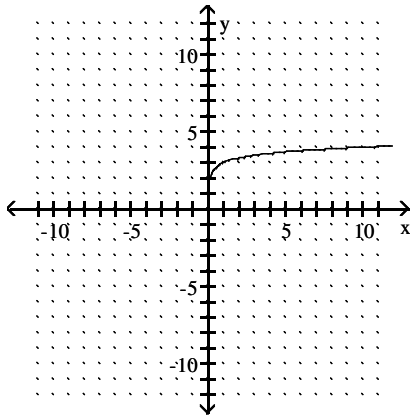
42)



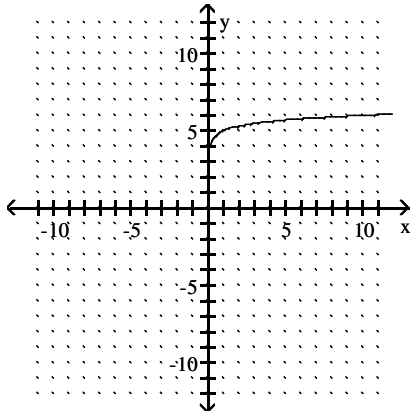
43)



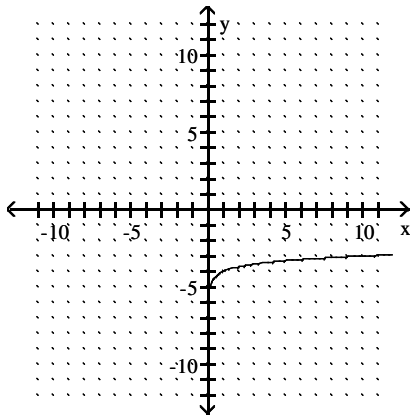
44)



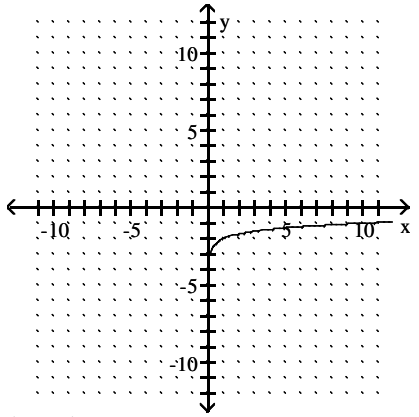
45)



46)



47)



48) $(-2, \infty)$
49) $(-4, \infty)$
50) $(-4, \infty)$
51) $(1, \infty)$
52) $(5, \infty)$
53) $(-\infty, 1)$
54) $(-\infty, 7)$
55) $(-\infty, 4)$
56) $(-\infty, 5)$
57) $(-\infty, 3)$
58) $(-\infty, 7)$ or $(7, \infty)$
59) $(-\infty, 8)$ or $(8, \infty)$
60) $(-\infty, -8)$ or $(-8, \infty)$
61) $(-\infty, -1)$ or $(-1, \infty)$
62) $(-\infty, 4) \cup (9, \infty)$
63) $(-\infty, 2) \cup (7, \infty)$
64) $(-\infty, -7) \cup (9, \infty)$
65) $(-\infty, -8) \cup (8, \infty)$