Name_____ Class_____ Date_____

1 Let $f(-1) = 0; f(2) = 1$ and $f(4) = -2$. Find $f^{-1}(-2)$.

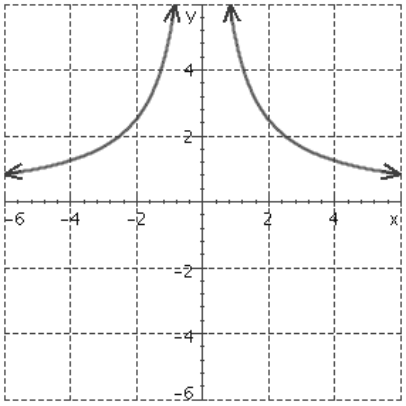
a. $\frac{1}{7}$ b. -1 c. 4 d. 6 e. -3

2 Suppose g is the inverse function for f, and we know the following function values for f:

$f(-3) = 4, \quad f(5) = 1, \quad f(6) = 0$

Find $g(4)$ and $g(0)$.

3 Does the function, graphed in the figure below, have an inverse that is also a function?



4 Graph the function

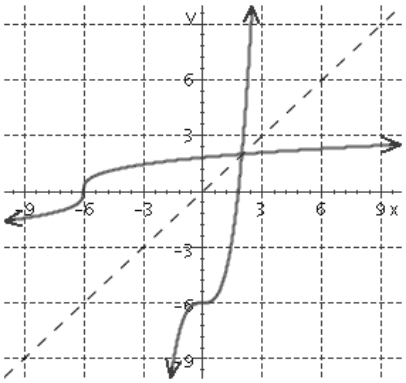
$$f(x) = x^3 + 6$$

and its inverse,

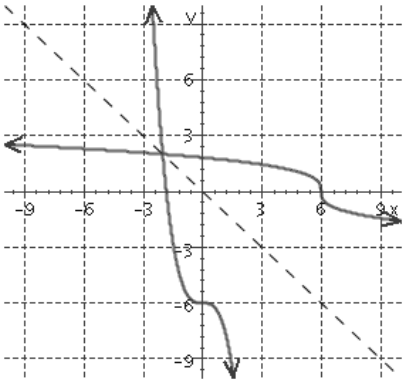
$$g(x) = \sqrt[3]{x - 6}$$

on the same set of axes.
Select the label that corresponds to the correct graph.

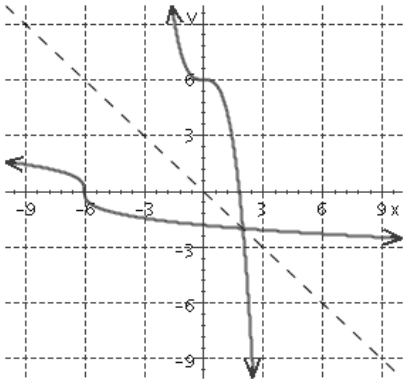
A



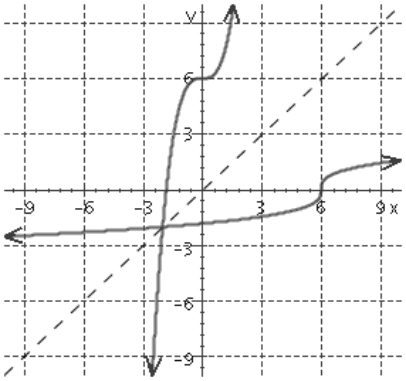
B



C



D



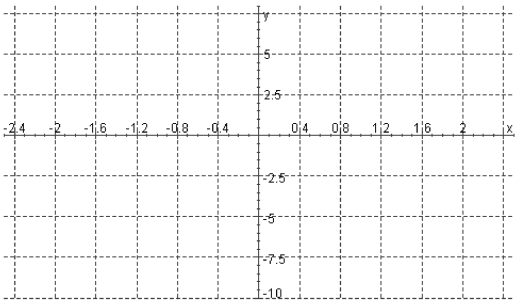
5 If $f(x) = \dfrac{x + 6}{x - 3}$, find $f^{-1}(5)$

a. $\dfrac{21}{4}$ b. $\dfrac{1}{4}$ c. $\dfrac{1}{3}$ d. $\dfrac{7}{9}$

6 Make a table of values for the inverse of the function.

$$f(x) = \sqrt[3]{x + 3}$$

x	$f^{-1}(x)$
-2	
-1	
0	
1	
2	



7 Find a formula for the inverse of the function.

$$f(x) = \frac{5}{x - 6}$$

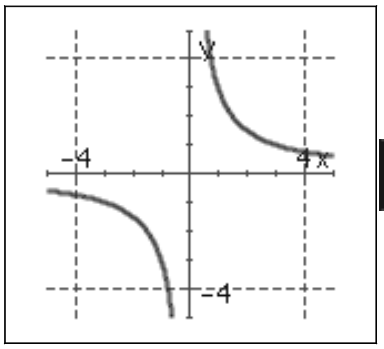
a. $f^{-1}(x) = \frac{6x + 5}{x}$

b. $f^{-1}(x) = \frac{6x - 11}{x}$

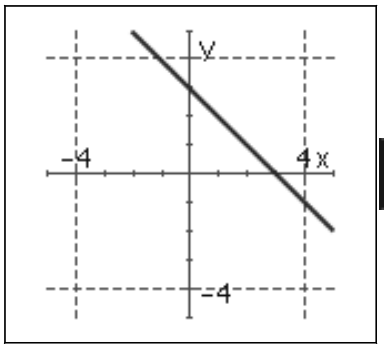
c. $f^{-1}(x) = \frac{30x + 5}{11x}$

d. $f^{-1}(x) = \frac{2x + 6}{7x}$

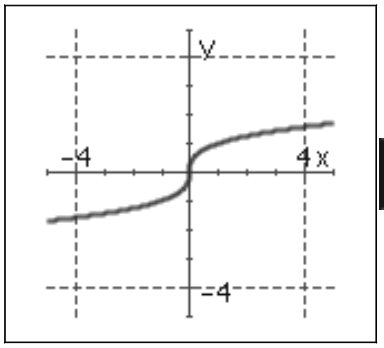
8 Match each graph in the left column with the corresponding its inverse function in the right column.



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



$f^{-1}(x) = x^3$

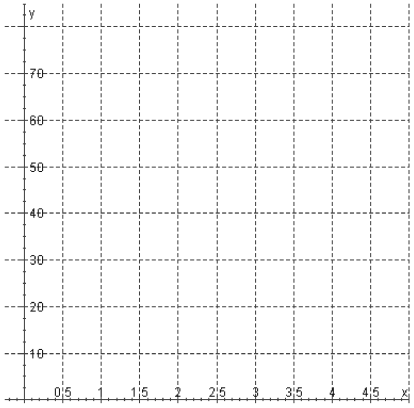


$f^{-1}(x) = -1x + 3$

9 Make a table of values for the exponential function

$F(X) = 3^{x}$

X	$F(X)$
0	
1	
2	
3	
4	



10 Solve.

$\log_9 (x + 5) - \log_9 2 = 1$

11 Evaluate the expression:

$$T = \frac{\log_{10}\left(\frac{M_f}{M_0} + 1\right)}{k}$$

where $k = 0.023$, $M_f = 1851$, and $M_0 = 16$.

12 Evaluate $8 - 3f(5)$, when $f(x) = \log_{10} x$.

Select the correct answer (rounded, where necessary, to three decimal places).

a. 7.301 b. undefined c. 0.699 d. 5.903 e. 7.903

13 Let $f(x) = 7^{x}$ and $g(x) = \log_7 x$

Compute $g[f(4)]$.

a. 3 b. 1 c. 4 d. 2

14 Convert the logarithmic equation to exponential form.

$\log_b 14 = -5$

a. $-5^{b} = 14$ b. $b^{14} = -5$ c. $14^{b} = -5$ d. $b^{-5} = 14$

15 Solve the logarithmic equation.

$$\log_8 (y + 103) - \log_8 (y + 5) = 1$$

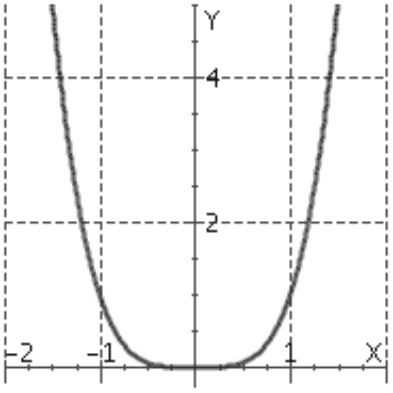
a. $y = -103$ b. $y = 9$ c. $y = -5$ d. $y = 10$

16 One of the graphs below is a portion of the graph of the following function.

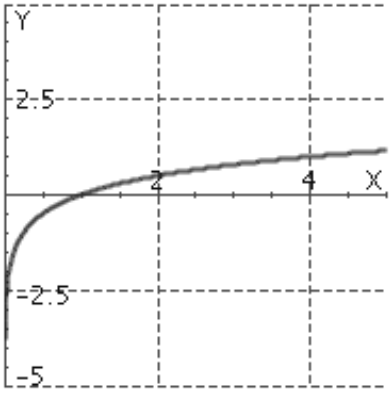
$f(x) = \log_4 x$

Select the correct graph.

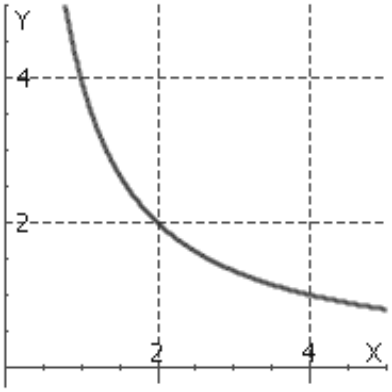
a.



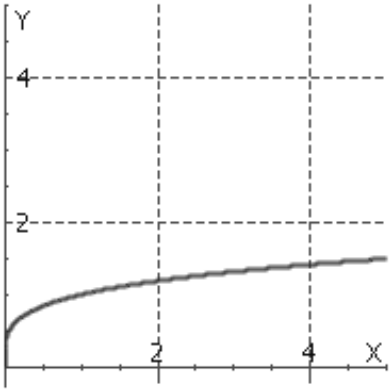
d.



b.

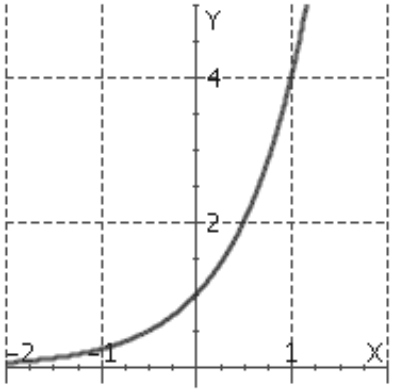


e.



..to be continued

c.



17 Solve for *x*.

$9.6 = 3e^{3.1x} + 8.4$

Round the solution to two decimal places.

18 Solve the equation for *x*.

$\ln x = 1.6$

Round the result to three decimal places.

19 Hope invests $2700 in a savings account that pays 6% annual interest compounded continuously. How much will Hope's account be worth after 2 years?

a. $2593.24 b. $3495.24 c. $1691.25 d. $3044.24

20 Fill in the table, rounding your answers to four decimal places.

x	e^x
0.3	
1.7	
2.8	
3.1	
4.6	
5.1	

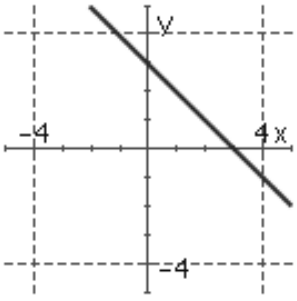
ANSWER KEY

Sample questions On Ch 5

1. c

2. $-3,6$

3. no



→ $f^{-1}(x) = -1x + 3,$

4. D

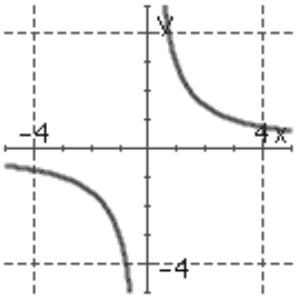
5. a

6.

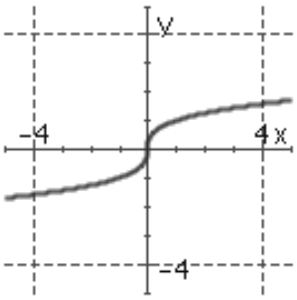
x	$f^{-1}(x)$
-2	-11
-1	-4
0	-3
1	-2
2	5

7. a

8.



→ $f^{-1}(x) = \frac{3}{x},$



→ $f^{-1}(x) = x^3$

9.

X	$F(X)$
0	1
1	3
2	9
3	27
4	81

10. x=13

11. 89.87

12. d

13. c

14. d

15. b

16. d

17. x=-0.3

18. x=4.953

19. d

20.

x	e^x
0.3	1.3499
1.7	5.4739
2.8	16.444647
3.1	22.1980
4.6	99.4843
5.1	164.0219