63. Which function is best represented by the data in this table?
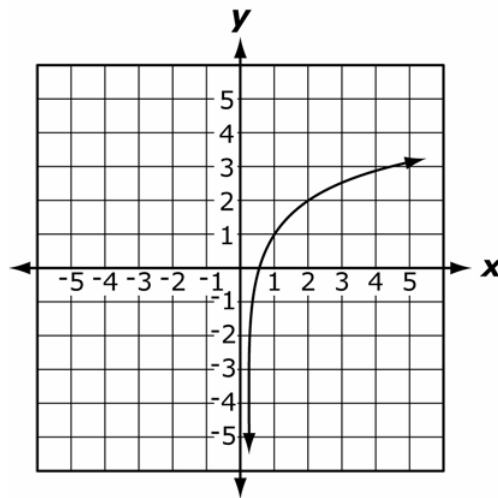
X	0	1	2	3	4
Y	1	3	9	27	81

A $f(x) = x^3$

B $f(x) = 3^x$

C $f(x) = 3x$

D $f(x) = 3x^2$

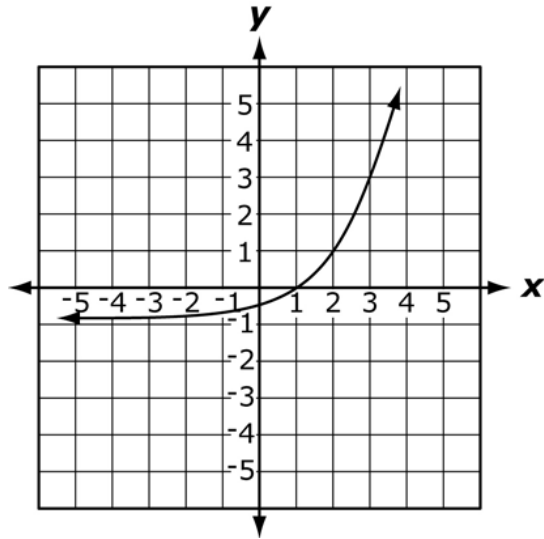64. What are the horizontal asymptote and y-intercept for the graph of this function $f(x) = 2^{-x} + 7$?

A Asymptote: y=7, Intercept: (0, 7)
B Asymptote: y=-7, Intercept: (0, 7)
C Asymptote: y=7, Intercept: (0, 8)
D Asymptote: y=-7, Intercept: (0, 8)

65. Which function is best represented by this graph?
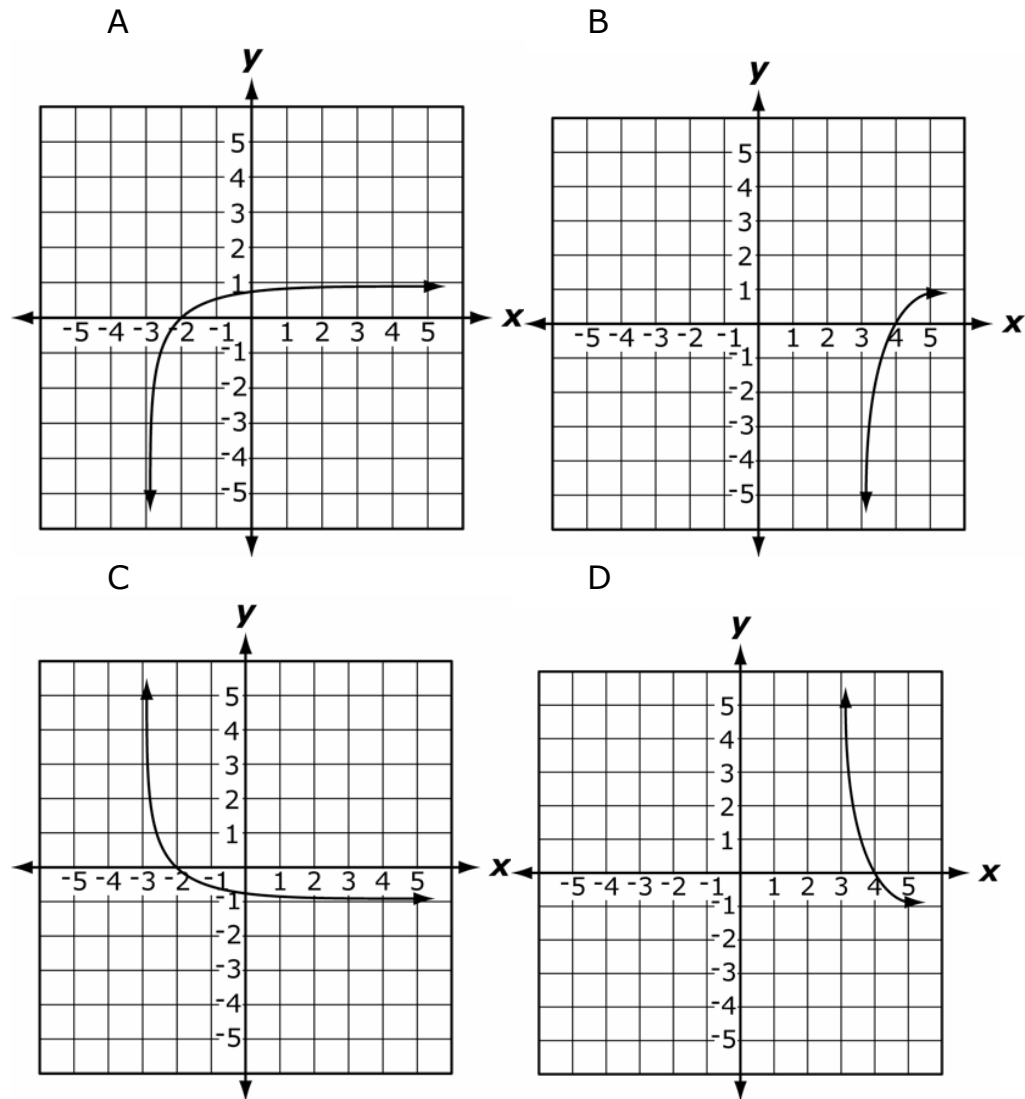

A $f(x) = \log_2 x + 1$

B $f(x) = \log_2 x - 1$

C $f(x) = \log_2 (x+1)$

D $f(x) = \log_2 (x-1)$

66. Which function is best represented by this graph?

A $f(x) = 2^{x-1} - 1$

B $f(x) = 2^{x+1} - 1$

C $f(x) = 2^x - \dfrac{1}{2}$

D $f(x) = 2^{x-1}$

67. Which graph represents the function $f(x)=\log(x+3)$?

A

B

C

D

68. Which function is the inverse of $f(x)=\log x$?

A $f(x)=e^x$

B $f(x)=2^x$

C $f(x)=10^x$

D $f(x)=\dfrac{1}{\log x}$

69. If $3^{\log_3 7}=x$, what is the value of x?

A 7

B 3^7

C $\sqrt[3]{7}$

D $\sqrt[7]{3}$

70. Which equation represents the solution for x in the formula $6^x = 21$?

A $x = \dfrac{\log 6}{\log 21}$

B $x = \dfrac{\log 21}{\log 6}$

C $x = \log 21 - \log 6$

D $x = \log 21 + \log 6$

71. What is the value of $\log \sqrt{10}$?

   A 0
   B ½
   C 1
   D 10

72. If $\log_{2x} 80 = 2$, what is the value of x?

   A 20
   B $2\sqrt{5}$
   C $5\sqrt{2}$
   D $2\sqrt{10}$

73. If $4\left(Log_3 \dfrac{1}{27}\right) = x$, what is the value of x?

   A $\dfrac{4}{3}$

   B $\dfrac{-4}{3}$

   C 12
   D -12

Objective: 2.5c

74. If the loudness of fizz in a can of soda pop is represented

by $F = 4\log\left(\dfrac{x}{10^{-5}}\right)$, where x is represented by the intensity of sound, how

loud is the fizz if $x = 10^{-3}$?

   A 4 decibels
   B 8 decibels
   C 16 decibels
   D 32 decibels

75. The formula, $r = 2^{\frac{1}{x}} - 1$, gives the annual interest rate, r, required for your money to double in x years. If it takes 18 years for your money to double, what was the approximate annual interest rate?

   A 2%
   B 4%
   C 8%
   D 18%

76. The population, P, of prairie dogs increases according to the equation $P = 2,250e^{rt}$, where t is the number of years, and r is the rate of growth. Which equation solves for r?

   A $r = \dfrac{\ln\left(\dfrac{P}{2,250}\right)}{t}$

   B $r = \dfrac{t}{\ln\left(\dfrac{P}{2,250}\right)}$

   C $r = \dfrac{\ln\left(\dfrac{2,250}{P}\right)}{t}$

   D $r = \dfrac{t}{\ln\left(\dfrac{2,250}{P}\right)}$

77. The mass of a radioactive sample is given by $M(t) = M_0 10^{-kt}$, where t is the time in years, M_0 is the initial mass, and k is a constant. If 400 grams of this material decays to 40 grams in 10 years, what is the value of k?

   A 1
   B -1
   C 0.1
   D -0.1

Objective 2.6a

78. Which equation has -1 and 3 as solutions?
   A $x^2 - 2x - 3 = 0$
   B $x^2 - 2x + 3 = 0$
   C $x^2 + 2x - 3 = 0$
   D $x^2 + 2x + 3 = 0$