Exam Practice Test #10 #1

Name_____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Simplify without using a calculator.

1) $8^{4/3}$ 1) _____

A) 128 B) 64 C) 16 D) 32

2) $-32^{1/5}$ 2) _____

A) -2 B) -8 C) 32 D) 16

Simplify.

3) $(-2x^4y^{-5})(5x^{-1}y)$ 3) _____

A) $-10x^3y^6$ B) $\frac{-10x^3}{y^4}$ C) $\frac{-10x^5}{y^6}$ D) $\frac{3x^3}{y^4}$

4) $\frac{12x^8y^{-2}}{4x^5y^{-3}}$ 4) _____

A) $3x^2y$ B) $3x^3y$ C) $\frac{3x^3}{y}$ D) $\frac{3x^2}{y}$

5) $\left(\frac{12x^{-4}z^4}{3xz^{-4}}\right)^{-2}$ 5) _____

A) $\frac{x^{10}}{16z^{16}}$ B) $\frac{4x^{10}}{z^{16}}$ C) $\frac{x^6}{16z^{16}}$ D) $\frac{x^{10}z^{16}}{16}$

Simplify the expression. Assume that n is a counting number.

6) $b^{(6n-2)}b^{(3n+3)}$ 6) _____

A) $b^{(3n+5)}$ B) $b^{(9n+1)}$ C) $b^{(3n+1)}$ D) $b^{(9n+5)}$

Simplify the expression. Assume that all variables are positive.

7) $x^{-1/5}\,x^{-5/3}$ 7) _____

A) $x^{1/3}$ B) $\frac{1}{x^{15/28}}$ C) $\frac{1}{x^{1/3}}$ D) $\frac{1}{x^{28/15}}$

8) $\left(\frac{4^3x^{1/5}y^2}{x^{1/5}}\right)^{1/3}$ 8) _____

A) $4y^{2/3}$ B) $4y^2$ C) $4y^{3/2}$ D) $y^{2/3}$

9) $\left(\frac{2^2x^{1/4}y^7}{x^{1/4}}\right)^{1/2}$ 9) _____

A) $2y^{7/2}$ B) $y^{7/2}$ C) $2y^{2/7}$ D) $2y^7$

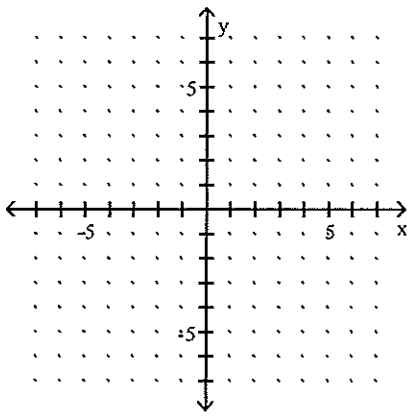
Evaluate as specified.

10) For $f(x) = 32^x$, find $f\left(\frac{3}{5}\right)$. 10) _____

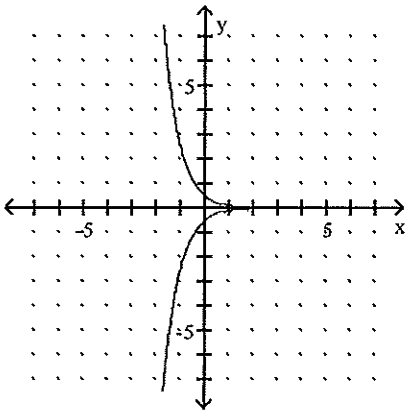
A) 4 B) 8 C) 6 D) 16

Sketch the graph of both functions on the same coordinate system.

11) $f(x) = 2(\frac{1}{5})^x$, $g(x) = -2(\frac{1}{5})^x$ 11) _____



A)



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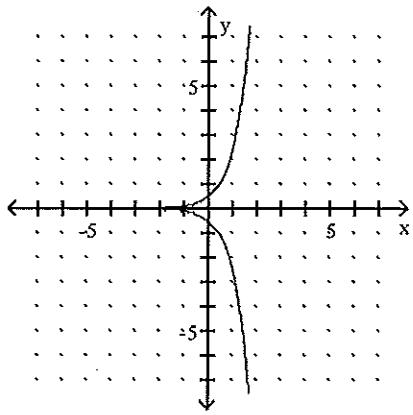

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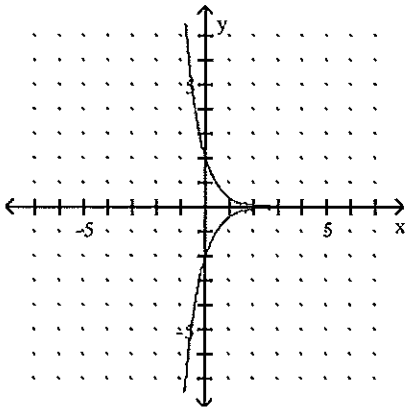

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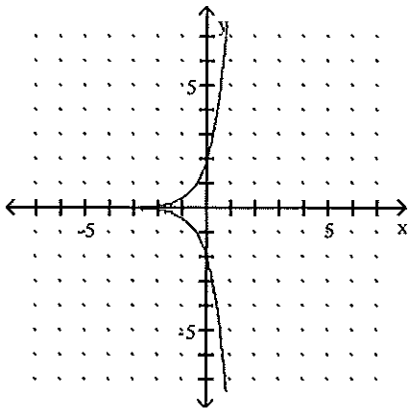


Find an approximate equation $y = ab^x$ of the exponential curve that contains the given pair of points. Round the values of a and/or b to two decimal places, if necessary.

12) (0, 4) and (3, 67) 12) _____

A) $y = 4(50.25)^x$ B) $y = 4(5.58)^x$ C) $y = 4(2.56)^x$ D) $y = 4(2.82)^x$

13) (2, 7) and (5, 69) 13) _____

A) $y = 6.54(2.14)^x$ B) $y = 1.52(2.14)^x$ C) $y = 2.99(2.34)^x$ D) $y = 4.26(3.29)^x$

Solve the problem.

14) The amount of money given in grants by a foundation is displayed in the table. 14) _____

Year	Annual Giving (in millions of dollars)
1990	8.1
1992	9.9
1994	12.1
1996	14.6
1998	18.7
1999	21.5

Let f(t) represent the amount of giving (in millions of dollars) by the foundation for the year that is t years since 1990. Find an exponential model $f(t) = ab^t$ using the data for 1992 and 1996.

A) $f(t) = 7.11(1.18)^t$ B) $f(t) = 8.18(1.10)^t$

C) $f(t) = 8.18(1.21)^t$ D) $f(t) = 13.38(0.37)^t$

15) Suppose that 4675 units of a new product were sold in 2003. Each year after 2003, sales of the product were half the previous year's sales. Let g(t) be the sales of units of the product in the year that is t years since 2003. Find an equation of g. 15) _____

A) $g(t) = (4675)^{0.5t}$ B) $g(t) = 4675(0.5t)$ C) $g(t) = 4675(0.5)^t$ D) $g(t) = 4675(2)^t$

Find all real-number solutions. Round your answer to the second decimal place, if necessary.

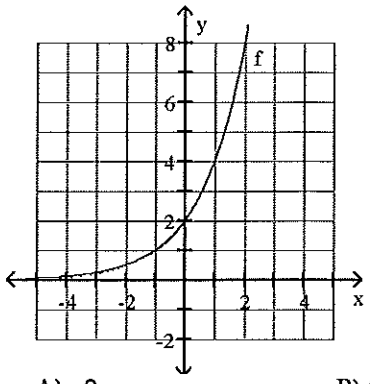
16) $2.7b^3 - 65.1 = 195.3$ 16) _____

A) 289.33 B) 32.15

C) 4.59 D) No real-number solution

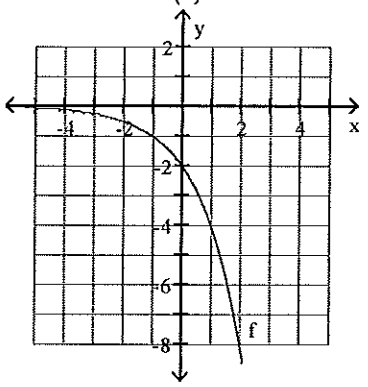
Use the graph to find the requested value.

17) Find f(1). 17) _____



A) -2 B) 0 C) 4 D) -1

18) Find x where f(x) = -1. 18) _____



A) 1 B) 2 C) -2 D) -1

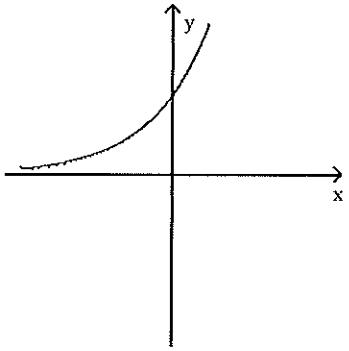
Solve the problem.

19) Austin invested $12,000 in an account at 7% compounded annually. Find the amount in Austin's account after a period of 9 years. 19) _____

A) $10,408.89 B) $22,408.89 C) $22,061.51 D) $22,023.48

A graph of a function of the form $y = ab^x$ is given. What can you conclude about the constants a and b?

20) 20) _____



A) $a < 0,\ b > 1$ B) $a > 0,\ b > 1$ C) $a < 0,\ 0 < b < 1$ D) $a > 0,\ 0 < b < 1$

1) C
2) A
3) B
4) B
5) A
6) B
7) D
8) A
9) A
10) B
11) C
12) C
13) B
14) B
15) C
16) C
17) C
18) D
19) C
20) B