

Exponential Functions

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

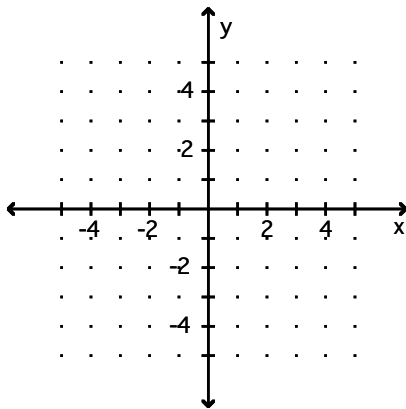
Approximate the number using a calculator. Round your answer to three decimal places.

1) $5^{3.5}$ A) 525.219 B) 17.500 C) 279.508 D) 279.808 1) _____

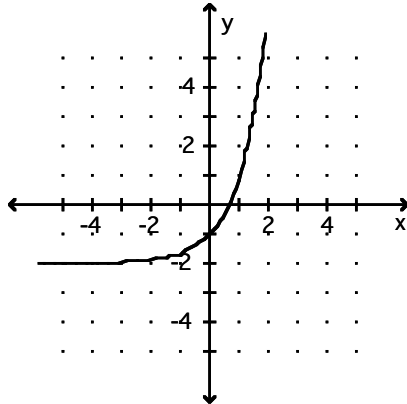
2) $3^{-3.6}$ A) 0.319 B) -10.800 C) -46.656 D) 0.019 2) _____

Graph the function.

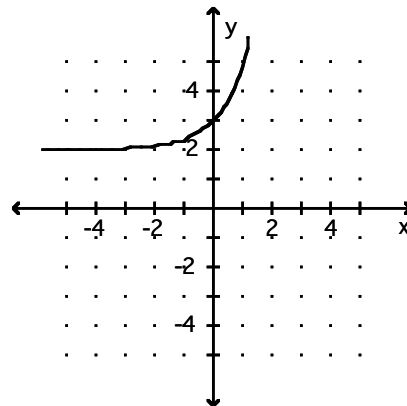
3) Use the graph of $f(x) = 3^x$ to obtain the graph of $g(x) = 3^x + 2$. 3) _____



A)

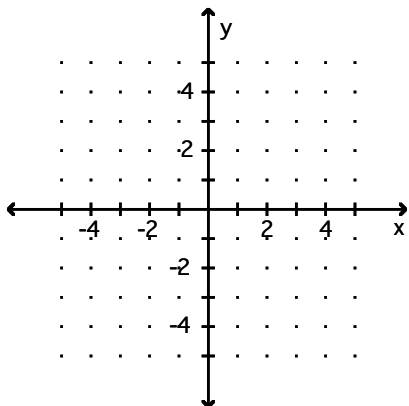


B)

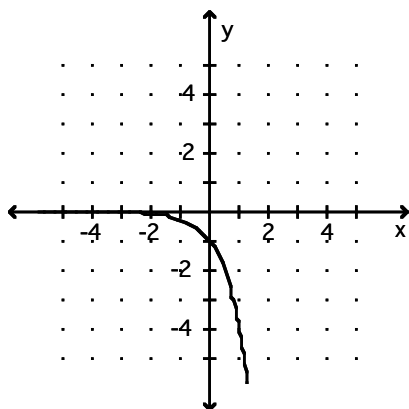


4) Use the graph of $f(x) = 4^x$ to obtain the graph of $g(x) = 4^{-x}$.

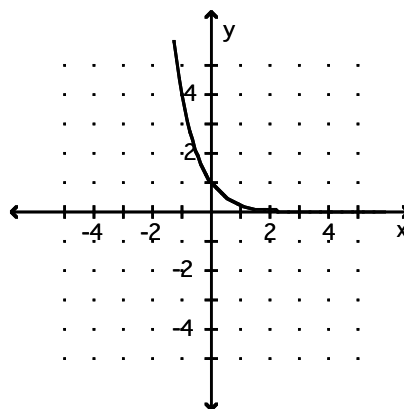
4) _____



A)



B)



Solve the equation.

5) $2(3^{x-7}) = 4$

5) _____

A) {1}

B) $\left\{\frac{1}{2}\right\}$

C) {-3}

D) {3}

6) $5^{-x} = \frac{1}{25}$

6) _____

A) $\left\{\frac{1}{2}\right\}$

B) {-2}

C) {2}

D) $\left\{\frac{1}{5}\right\}$

Approximate the number using a calculator. Round your answer to three decimal places.

7) $e^{3.6}$

7) _____

A) 36.598

B) 36.898

C) 9.786

D) 32.523

8) $e^{-0.6}$

8) _____

A) -0.549

B) 0.849

C) -1.631

D) 0.549

Solve the problem.

- 9) The growth in the mouse population at a certain county dump can be modeled by the exponential function $A(t) = 395e^{0.013t}$, where t is the number of months since the population was first recorded. Estimate the population after 28 months. 9) _____
- A) 576 B) 284 C) 568 D) 400

- 10) The function $D(h) = 8e^{-0.4h}$ can be used to determine the milligrams D of a certain drug in a patient's bloodstream h hours after the drug has been given. How many milligrams (to two decimals) will be present after 7 hours? 10) _____
- A) 5.81 mg B) 0.29 mg C) 131.56 mg D) 0.49 mg

Use the compound interest formulas $A = P\left(1 + \frac{r}{n}\right)^{nt}$ and $A = Pe^{rt}$ to solve.

- 11) Find the accumulated value of an investment of \$2000 at 10% compounded annually for 13 years. 11) _____
- A) \$4400.00 B) \$6276.86 C) \$4600.00 D) \$6904.54

- 12) Find the accumulated value of an investment of \$13,000 at 4% compounded semiannually for 9 years. 12) _____
- A) \$18,567.20 B) \$15,536.20 C) \$17,680.00 D) \$18,503.05

- 13) Find the accumulated value of an investment of \$1200 at 8% compounded quarterly for 2 years. 13) _____
- A) \$1399.68 B) \$1392.00 C) \$1405.99 D) \$1248.48

- 14) Find the accumulated value of an investment of \$290 at 12% compounded annually for 16 years. 14) _____
- A) \$812.00 B) \$1777.81 C) \$846.80 D) \$1587.33

- 15) Find the accumulated value of an investment of \$8000 at 9% compounded continuously for 4 years. 15) _____
- A) \$11,566.64 B) \$11,292.65 C) \$10,880.00 D) \$11,466.64

- 16) Find the accumulated value of an investment of \$5000 at 5% compounded monthly for 8 years. 16) _____
- A) \$12,911.25 B) \$7452.93 C) \$9093.60 D) \$8060.16

- 17) Suppose that you have \$4000 to invest. Which investment yields the greater return over 6 years: 7.5% compounded continuously or 7.6% compounded semiannually? 17) _____
- A) Both investment plans yield the same return.
B) \$4000 invested at 7.6% compounded semiannually over 6 years yields the greater return.
C) \$4000 invested at 7.5% compounded continuously over 6 years yields the greater return.

- 18) Suppose that you have \$3000 to invest. Which investment yields the greater return over 5 years: 7.2% compounded monthly or 7.3% compounded quarterly? 18) _____
- A) \$3000 invested at 7.2% compounded monthly over 5 years yields the greater return.
B) \$3000 invested at 7.3% compounded quarterly over 5 years yields the greater return.
C) Both investment plans yield the same return.

Answer Key

Testname: EXPONENTIAL FUNCTIONS

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