

## 6.1: Graded Homework

Nicole Cook

### ● Question 1

0/1 pt 3 99

A population numbers 19,000 organisms initially and grows by 1.2% each year.

Suppose  $P$  represents population and  $t$  represents the number of years of growth. An exponential model for the population can be written in the form  $P = ab^t$ , where

$P =$

Question Help:  Video 1  Video 2  Message instructor

## ● Question 2

0/1 pt 3 99

A population numbers 11,000 organisms initially and decreases by 6.8% each year.

Suppose  $P$  represents population, and  $t$  the number of years of growth. An exponential model for the population can be written in the form  $P = ab^t$ , where

$P =$

Question Help:  Video 1  Video 2  Message instructor

### ● Question 3

0/1 pt 3 99

The fox population in a certain region has an annual growth rate of 5 percent per year. It is estimated that the population in the year 2000 was 26600.

(a) Find a function that models the population  $t$  years after 2000 ( $t = 0$  for 2000).

Your answer is  $P(t) =$

(b) Use the function from part (a) to estimate the fox population in the year 2008.

Your answer is (the answer should be an integer)

Question Help:  Video  Message instructor

### ● Question 4

✓ 0/1 pt ↺ 3 ⇄ 99

A population numbers 10,000 organisms initially and decreases by 3.9% each year.

Suppose  $P$  represents population, and  $t$  the number of years of growth. An exponential model for the population can be written in the form  $P = a \cdot b^t$  where

$P =$

Question Help:  Video  Message instructor

### Question 5

✓ 0/1 pt ↺ 3 ↻ 99

A population numbers 20,000 organisms initially and grows by 2% each year.

Suppose  $P$  represents population, and  $t$  the number of years of growth. An exponential model for the population can be written in the form  $P = a \cdot b^t$  where

$P =$

Question Help:  Video  Message instructor

### ● Question 6

✓ 0/1 pt ↺ 3 ↻ 99

A vehicle purchased for \$27500 depreciates at a rate of 4% per year.

Determine the approximate value of the vehicle 13 years after purchase.

Round to the nearest whole number.

|  |
|--|
|  |
|--|

Question Help:  Video  Message instructor

### ● Question 7

✓ 0/1 pt ↺ 3 ↻ 99

An exponential function  $f(x) = ab^x$  passes through the points  $(0, 3)$  and  $(2, 27)$ . What are the values of  $a$  and  $b$ ?

$$a = \underline{\hspace{2cm}}$$

$$b = \underbrace{\hspace{10em}}$$

Question Help:  Video  Message instructor

### ● Question 8

0/1 pt 3 99

Find a formula for the exponential function passing through the points:

(0,4) and (1,8)

start your equation by typing y= -->

$$y = a(b)^x$$

a = y-intercept

b = multiplier = next  
previous

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● Question 9

✓ 0/1 pt ↻ 3 ↺ 99

You deposit \$2000 in an account earning 6% interest compounded continuously. How much will you have in the account in 5 years?

\$

Question Help:  Video  Message instructor

● Question 10

✓ 0/1 pt ↻ 3 ↺ 99

\$7000 are invested in a bank account at an interest rate of 9 percent per year.

Find the amount in the bank after 7 years if interest is compounded annually.

Find the amount in the bank after 7 years if interest is compounded quarterly.

Find the amount in the bank after 7 years if interest is compounded monthly.

Finally, find the amount in the bank after 7 years if interest is compounded continuously.

Question Help:  Video  Message instructor

● Question 11

✓ 0/1 pt ↻ 3 ⇄ 99

If 49200 dollars is invested at an interest rate of 6 percent per year, find the value of the investment at the end of 5 years for the following compounding methods, to the nearest cent.

- (a) Annual: \$
- (b) Semiannual: \$
- (c) Monthly: \$
- (d) Daily: \$

Question Help: ☐ Video ☐ Message instructor

● Question 12

✓ 0/1 pt ↻ 3 ⇄ 99

Find the final amount of money in an account if \$9,400 is deposited at 5% interest compounded semi-annually and the money is left for 10 years.

The final amount is \$  . *Round answer to 2 decimal places*

Question Help: ☐ Message instructor

● Question 13

✓ 0/1 pt ↻ 3 ⇄ 99

If 3000 dollars is invested in a bank account at an interest rate of 5 per cent per year,

Find the amount in the bank after 10 years if interest is compounded annually:

Find the amount in the bank after 10 years if interest is compounded quarterly:

Find the amount in the bank after 10 years if interest is compounded monthly:

Finally, find the amount in the bank after 10 years if interest is compounded continuously:

Question Help: ☐ Video ☐ Message instructor

● Question 14

✓ 0/1 pt ↻ 3 ⇄ 99

A bank features a savings account that has an annual percentage rate of  $r = 4.4\%$  with interest compounded quarterly. Bryan deposits \$8,500 into the account.

The account balance can be modeled by the exponential formula  $A(t) = P\left(1 + \frac{r}{n}\right)^{nt}$ , where  $A$  is the future value,  $P$  is the present value,  $r$  is the annual percentage rate written as a decimal,  $n$  is the number of times each year that the interest is compounded, and  $t$  is the time in years.

(A) What values should be used for  $P$ ,  $r$ , and  $n$ ?

$P =$  \_\_\_\_\_

$r =$  \_\_\_\_\_

$n =$  \_\_\_\_\_

(B) How much money will Bryan have in the account in 8 years?

\$ \_\_\_\_\_.

Round answer to the nearest penny.

Question Help:  Video  Written Example  Message instructor

● Question 15

 0/1 pt  3  99

The fox population in a certain region has a continuous growth rate of 8 percent per year. It is estimated that the population in the year 2000 was 17000.

(a) Find a function that models the population  $t$  years after 2000 ( $t = 0$  for 2000).

Hint: Use an exponential function with base  $e$ .

Your answer is  $P(t) =$

(b) Use the function from part (a) to estimate the fox population in the year 2008.

Your answer is (the answer must be an integer)

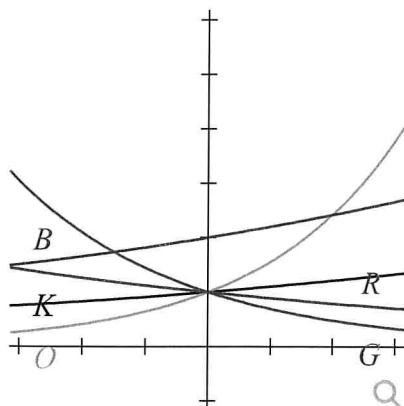
Question Help:  Video  Message instructor

## 6.2: Graded Homework

Nicole Cook

### Question 1

0/1 pt 3 99



If all the graphs above have equations with form  $y = ab^x$ ,

Which graph has the largest value for  $b$ ? Select an answer ▼

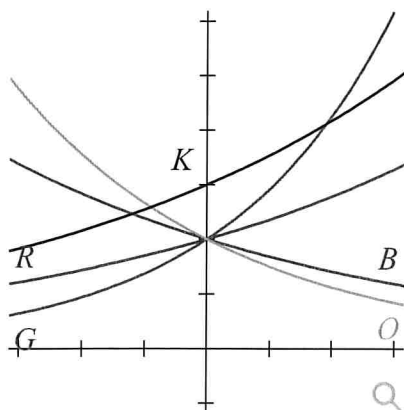
Which graph has the smallest value for  $b$ ? Select an answer ▼

Which graph has the largest value for  $a$ ? Select an answer ▼

Question Help: [Video](#) [Message instructor](#)

### Question 2

0/1 pt 3 99

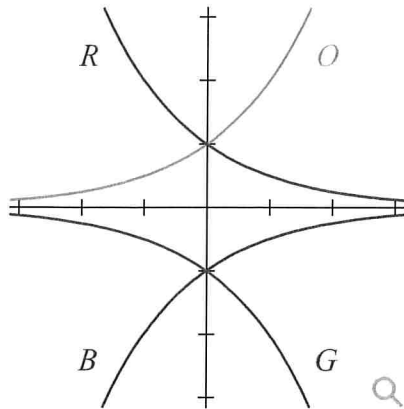


Match each equation with a graph above

- |                     |               |
|---------------------|---------------|
| - ▼ $y = 2(0.84)^x$ | a. orange (O) |
| - ▼ $y = 2(1.18)^x$ | b. green (G)  |
| - ▼ $y = 3(1.18)^x$ | c. red (R)    |
| - ▼ $y = 2(0.75)^x$ | d. blue (B)   |
| - ▼ $y = 2(1.46)^x$ | e. black (K)  |

● Question 3

 0/1 pt  3  99



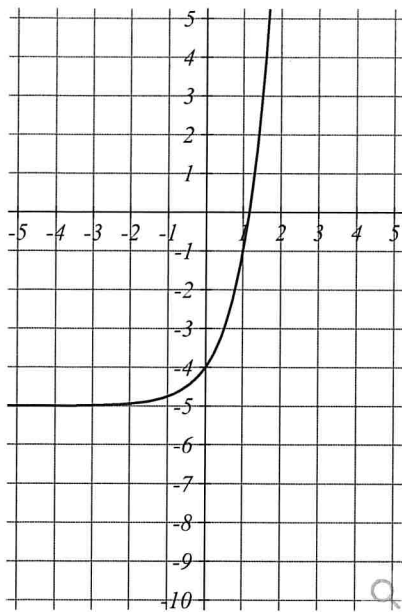
Match each equation with a graph above.

- |                                                                                                   |               |
|---------------------------------------------------------------------------------------------------|---------------|
| -  $y = -2^{-x}$ | a. green (G)  |
| -  $y = -2^x$    | b. orange (O) |
| -  $y = 2^{-x}$  | c. red (R)    |
| -  $y = 2^x$     | d. blue (B)   |

● Question 4

 0/1 pt  3  99

The function below has the form  $f(x) = b^x + k$ .



Which of the following functions is shown on the graph?

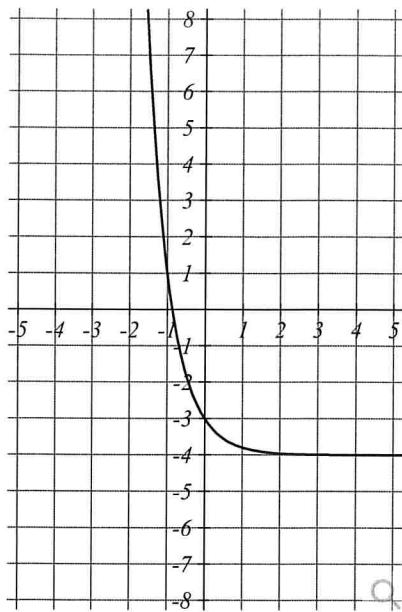
- ☐  $f(x) = 4^x - 4$
- ☐  $f(x) = \left(\frac{1}{4}\right)^x - 4$
- ☐  $f(x) = 4^x - 6$
- ☐  $f(x) = \left(\frac{1}{4}\right)^x - 6$
- ☐  $f(x) = \left(\frac{1}{4}\right)^x + 5$
- ☐  $f(x) = 4^x - 5$
- ☐  $f(x) = \left(\frac{1}{4}\right)^x - 5$
- ☐  $f(x) = 4^x + 5$

Question Help: [✉ Message instructor](#)

● Question 5

✓ 0/1 pt ⏮ 3 ⏭ 99

Find an equation for the graph sketched below



$f(x) =$

Question Help: [Video](#) [Message instructor](#)

● Question 6

0/1 pt 3 99

Starting with the graph of  $f(x) = 2^x$ , write the equation of the graph that results from

a. shifting  $f(x)$  3 units upward.

$y =$

b. reflecting  $f(x)$  about the y-axis.

$y =$

c. shifting  $f(x)$  6 units right.

$y =$

Question Help: [Video](#) [Message instructor](#)

● Question 7

0/1 pt 3 99

Starting with the graph of  $f(x) = 3^x$ , write the equation of the graph that results from

- a. shifting  $f(x)$  1 units upward.

$y =$

- b. shifting  $f(x)$  5 units right.

$y =$

- c. reflecting  $f(x)$  about the x-axis.

$y =$

Question Help:  Video  Message instructor

● Question 8

 0/1 pt  3  99

Which sequence of transformations will yield the graph of  $g(x) = 7^{x-6} - 2$

- ☐ Horizontal shift 6 units to the right; Vertical shift 2 units up
- ☐ Horizontal shift 6 units to the right; Vertical shift 2 units down
- ☐ Horizontal shift 2 units to the right; Vertical shift 6 units down
- ☐ Horizontal shift 2 units to the left; Vertical shift 6 units up
- ☐ Horizontal shift 6 units to the left; Vertical shift 2 units up
- ☐ Horizontal shift 6 units to the left; Vertical shift 2 units down

Question Help:  Written Example  Message instructor

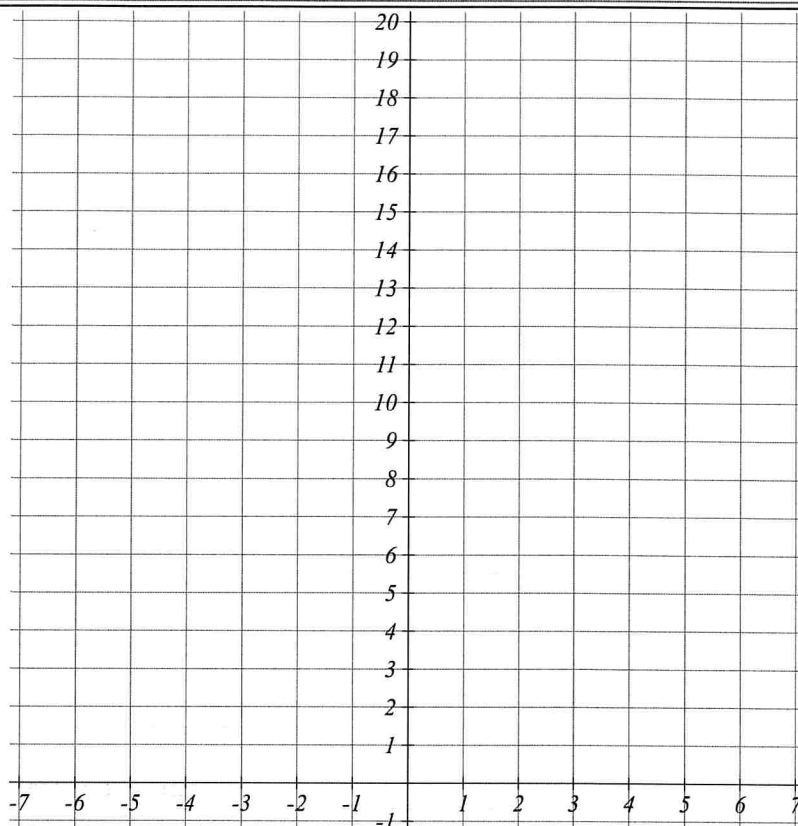
● Question 9

 0/1 pt  3  99

### Graphing Exponential Functions

Graph the Exponential Function  $f(x) = 2(3)^x$  by plotting the Vertical Intercept and one other point. Then write the Vertical Intercept as an ordered pair.

Graph the function  
 $f(x) = 2(3)^x$



Identify the Vertical Intercept as an Ordered Pair

\_\_\_\_\_

Question Help: ☐ Video ☒ Message instructor

#### ● Question 10

☒ 0/1 pt  3

The graph of the function  $f(x) = e^{-x} - 3$  can be obtained from the graph of  $g(x) = e^x$  by one of the following actions:

- (a) reflecting the graph of  $g(x)$  in the  $x$ -axis;
- (b) reflecting the graph of  $g(x)$  in the  $y$ -axis;

your answer is (input a or b) \_\_\_\_\_

then, by one of the following actions:

- (a) shifting the resulting graph to the right 3 units;
- (b) shifting the resulting graph to the left 3 units;
- (c) shifting the resulting graph upward 3 units;
- (d) shifting the resulting graph downward 3 units;

Your answer is (input a, b, c, or d) \_\_\_\_\_

Is the domain of the function  $f(x)$  still  $(-\infty, \infty)$ ?

Your answer is (input Yes or No) \_\_\_\_\_

The range of the function  $f(x)$  is  $(A, \infty)$ ,

the value of  $A$  is

## ● Question 11

0/1 pt 3 99

The graph of the function  $f(x) = -4^x$  can be obtained from the graph of  $g(x) = 4^x$  by one of the following actions:

- (a) shifting the graph of  $g(x)$  to the right 4 units;
- (b) shifting the graph of  $g(x)$  to the left 4 units;
- (c) shifting the graph of  $g(x)$  upward 4 units;
- (d) shifting the graph of  $g(x)$  downward 4 units;
- (e) reflecting the graph of  $g(x)$  in the  $x$ -axis;
- (f) reflecting the graph of  $g(x)$  in the  $y$ -axis;

Your answer is (input a, b, c, d, e, or f) \_\_\_\_\_

Is the domain of the function  $f(x)$  still  $(-\infty, \infty)$ ?

Your answer is (input Yes or No) \_\_\_\_\_

The range of the function  $f(x)$  is  $(-\infty, A)$ ,

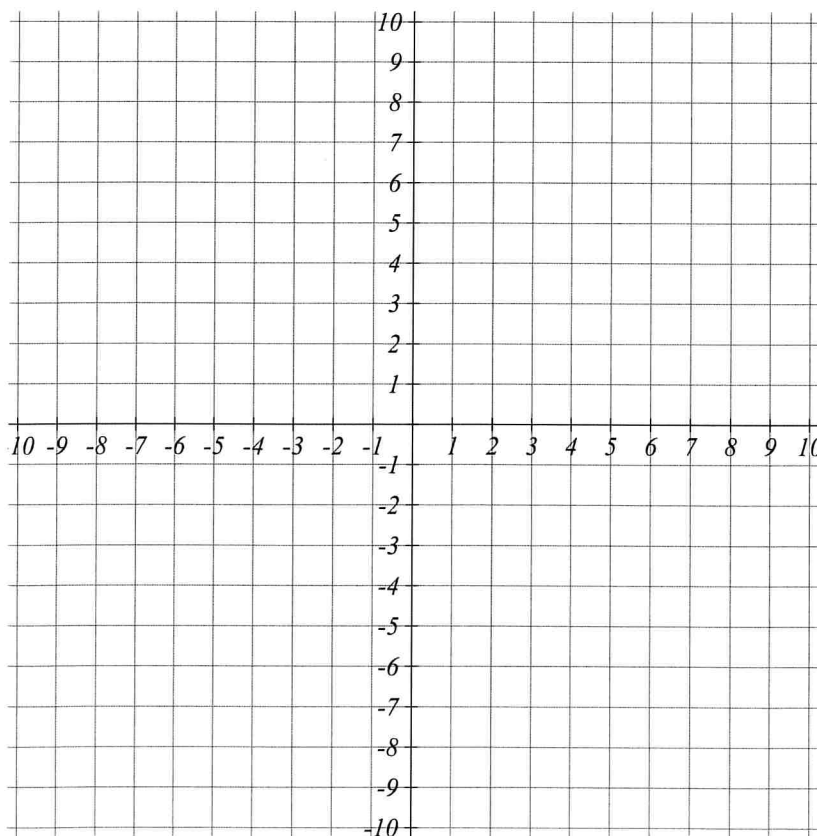
the value of  $A$  is

Question Help: [Video](#) [Message instructor](#)

## ● Question 12

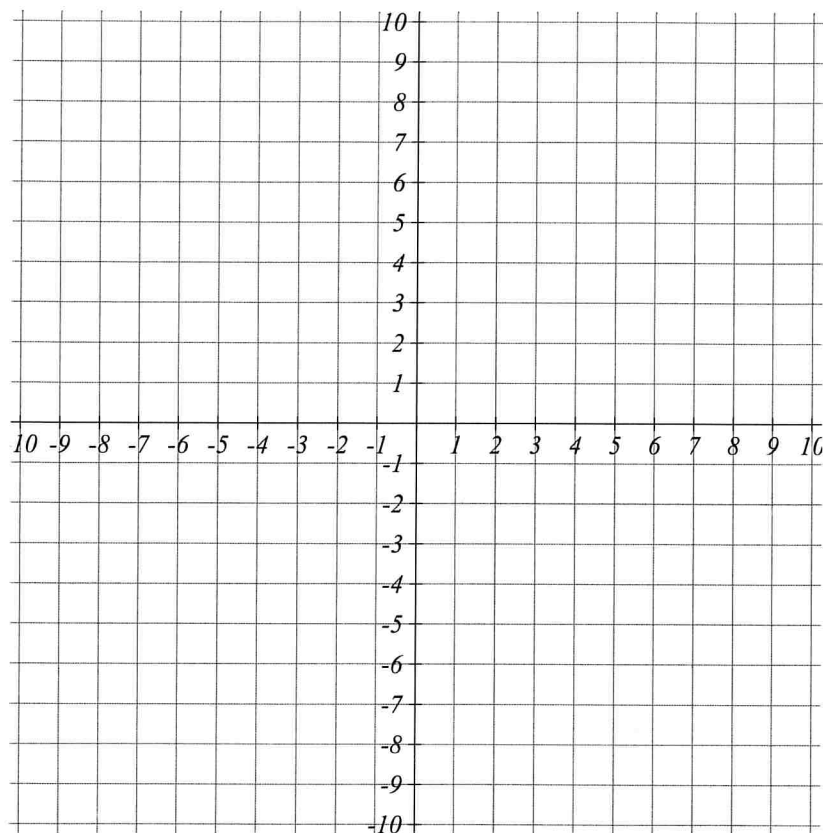
0/1 pt 3 99

Draw the graph of  $f(x) = \left(\frac{1}{5}\right)^{x-1}$



## ● Question 13

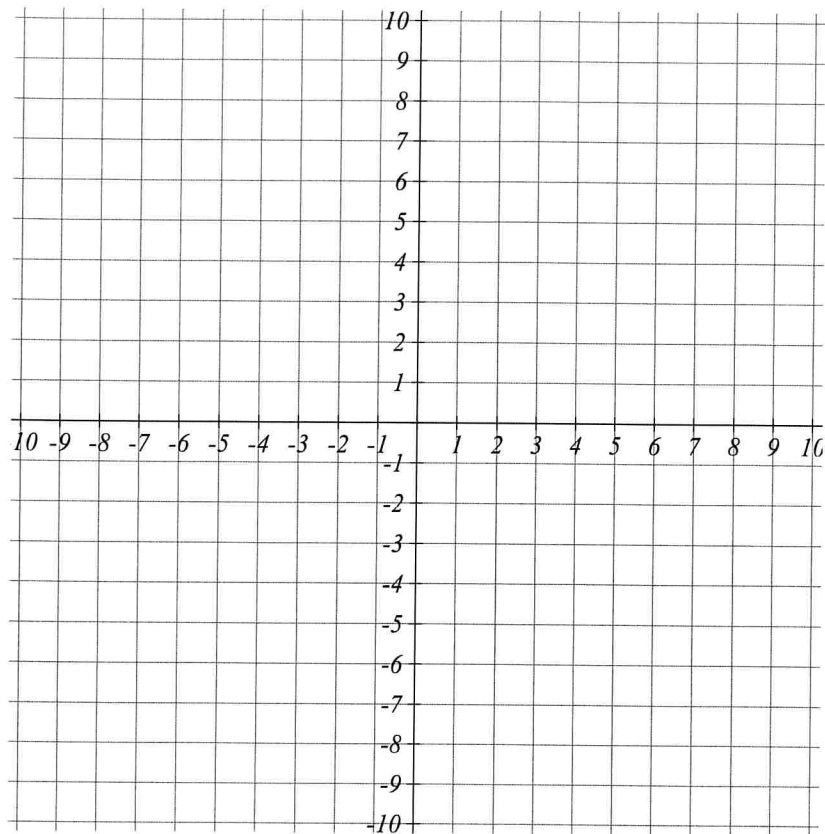
0/1 pt 3 99

Draw the graph of  $f(x) = 3^{x+4}$ 

## ● Question 14

0/1 pt 3 99

Draw the graph of  $f(x) = \left(\frac{1}{6}\right)^{-x+3}$



Question Help: ☐ Video ☒ Message instructor

## 6.3: Graded Homework

Nicole Cook

### ● Question 1

✓ 0/1 pt ↻ 3 ⇌ 99

Write the equation in exponential form.  
Assume that all constants are positive and not equal to 1.

$$\log_v(a) = q$$

Question Help: [▶ Video](#) [✉ Message instructor](#)

### ● Question 2

✓ 0/1 pt ↻ 3 ⇌ 99

Write the equation in exponential form.  
Assume that all constants are positive and not equal to 1.

$$\log(m) = u$$

Question Help: [▶ Video](#) [✉ Message instructor](#)

### ● Question 3

✓ 0/1 pt ↻ 3 ⇌ 99

Fill in each box below with an integer or a reduced fraction.

(a)  $\log_2 32 = 5$  can be written in the form  $2^A = B$  where

$A =$   and  $B =$

(b)  $\log_5 125 = 3$  can be written in the form  $5^C = D$  where

$C =$   and  $D =$

Question Help: [✉ Message instructor](#)

### ● Question 4

✓ 0/1 pt ↻ 3 ⇌ 99

Solve:  $\log_3(z) = -6$

$z =$

Question Help: [▶ Video](#) [✉ Message instructor](#)

### ● Question 5

✓ 0/1 pt ↻ 3 ⇌ 99

Solve:  $\log_7(v) = 2$

$v =$

Question Help: ☐ Video ☐ Message instructor

● Question 6

☒ 0/1 pt  3

Write the equation in logarithmic form.  
Assume that all constants are positive and not equal to 1.

$$9^n = s$$

[Hint](#)

Question Help: ☐ Video ☐ Message instructor

● Question 7

☒ 0/1 pt  3

Rewrite each of the following equations: (Make sure to preview each answer)

(a) Rewrite  $2^3 = 8$  as a logarithmic equation:

(b) Rewrite  $\log 0.001 = -3$  as an exponential equation:

Question Help: ☐ Video ☐ Message instructor

● Question 8

☒ 0/1 pt  3

Rewrite each of the following equations: (Make sure to preview each answer)

(a) Rewrite  $4^5 = 1024$  as a logarithmic equation:

(b) Rewrite  $\log 0.0001 = -4$  as an exponential equation:

Question Help: ☐ Video ☐ Message instructor

● Question 9

☒ 0/1 pt  3

Express the equation in logarithmic form:

(a)  $e^x = 4$  is equivalent to  $\ln A = B$ . Then

$A =$

and

$B =$

(b)  $e^5 = x$  is equivalent to  $\ln C = D$ . Then

$C =$

and

$D =$

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 10

✓ 0/1 pt ↻ 3 ⇌ 99

Find the logarithm.

$$\log_6\left(\frac{1}{6}\right) = \text{$$

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 11

✓ 0/1 pt ↻ 3 ⇌ 99

Evaluate using your calculator, giving at least 3 decimal places:

$$\log(520) = \underline{\hspace{2cm}}$$

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 12

✓ 0/1 pt ↻ 3 ⇌ 99

Evaluate the following expressions. Your answers must be exact and in simplest form.

(a)  $\ln e^7 =$

(b)  $e^{\ln 7} =$

(c)  $e^{\ln \sqrt{4}} =$

(d)  $\ln\left(\frac{1}{e^3}\right) =$

Question Help: [▶ Video 1](#) [▶ Video 2](#) [✉ Message instructor](#)

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● Question 13

✓ 0/1 pt ↻ 3 ⇌ 99

Solve for  $x$ :

$$\log_x(25) = 2$$

$$x = \boxed{\phantom{000}}$$

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 14

✓ 0/1 pt ↺ 3 ↻ 99

(a) If  $\log_5 x = 6$ , then  $x = \boxed{\phantom{000}}$  .

(b) If  $\log_3 x = 3$ , then  $x = \boxed{\phantom{000}}$  .

Question Help: [✉ Message instructor](#)

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● Question 15

✓ 0/1 pt ↺ 3 ↻ 99

Solve  $\log_4(x) + 4 = 7$   

Question Help: [✉ Message instructor](#)

## 6.4: Graded Homework

Nicole Cook

✓ Question 1

✓ 1/1 pt ↺ 2 ↻ 99

### Mini-Lesson - Graph an Exponential Function and Logarithmic Function

Watch the Video Lesson and take notes. When you are finished, click the check box below and then click submit (Required).

☒ I have completed this section of the Mini-Lesson and am ready to continue.



Question Help: Message instructor

● Question 2

✓ 0/1 pt ↺ 3 ↻ 99

Find the equation of the vertical asymptote  $f(x) = \log(x + 4)$

Question Help: Video Message instructor

● Question 3

✓ 0/1 pt ↺ 3 ↻ 99

Find the domain and range of  $y = \log_4(8 - 2x)$ .

The domain is:

The range is :

Question Help: ☐ Video ☒ Message instructor

● Question 4

☒ 0/1 pt  3

Find the domain and range of the following logarithmic function.

$$f(x) = 3 \ln(-x) + 7$$

a) Record the vertical asymptote below. Be sure to record your answer as  $x = \#$ .

b) Record the domain below using interval notation.

c) Record the range below using interval notation.

Question Help: ☐ Video 1 ☐ Video 2 ☒ Message instructor

● Question 5

☒ 0/1 pt  3

Find the domain and range of  $y = \log_3(7 + 5x)$ .

The domain is:

The range is :

Question Help: ☐ Video ☒ Message instructor

● Question 6

☒ 0/1 pt  3

Find the domain of  $\log(x^2 + 2x - 3)$  in interval notation.

Question Help: ☐ Video ☒ Message instructor

● Question 7

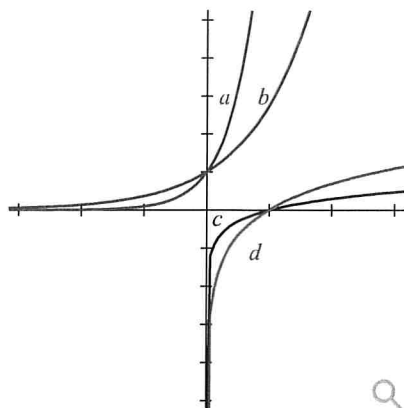
☒ 0/1 pt  3

Find the domain of  $\log(x^2 - 2x - 15)$  in interval notation.

Question Help: ☐ Video ☒ Message instructor

● Question 8

☒ 0/1 pt  3



Match each equation with a graph above

- |                                      |          |
|--------------------------------------|----------|
| - <input type="checkbox"/> $\ln(x)$  | a. red   |
| - <input type="checkbox"/> $e^x$     | b. blue  |
| - <input type="checkbox"/> $\log(x)$ | c. black |
| - <input type="checkbox"/> $10^x$    | d. green |

Question Help: ☐ Video ☐ Message instructor

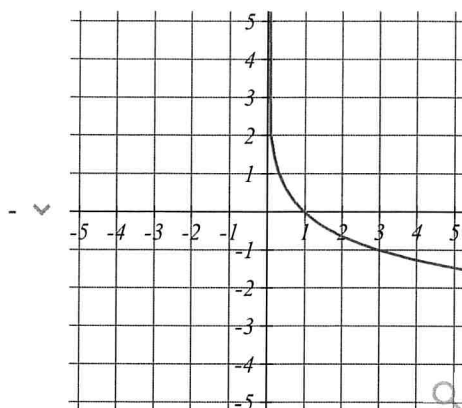
● Question 9

☒ 0/1 pt  3  99

Match the formula of the logarithmic function to its graph.

### Graphs of Logarithmic Functions

### Formulas for the Graphs

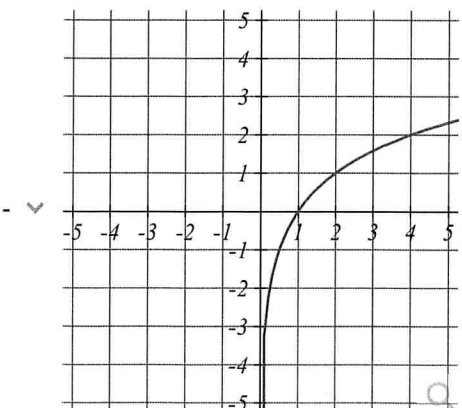
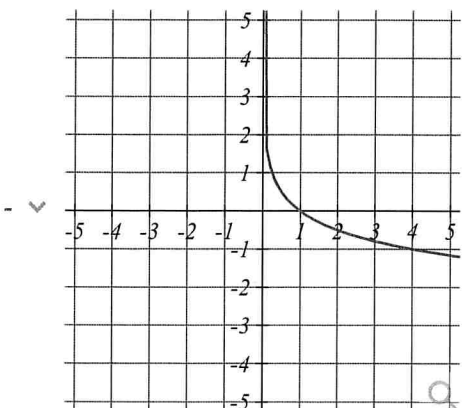
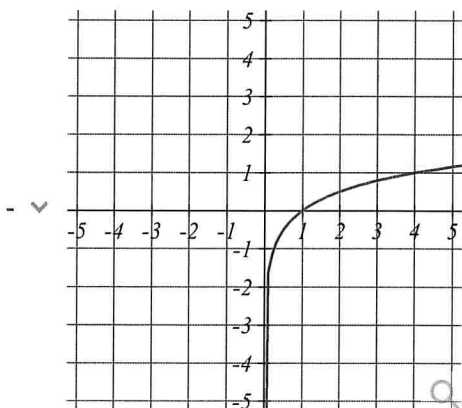


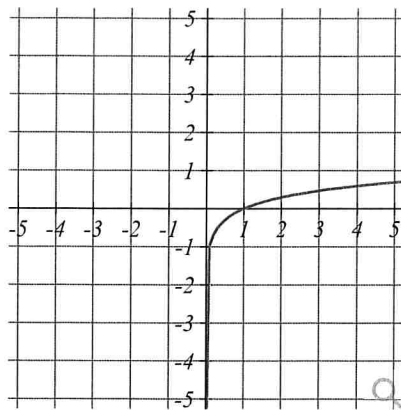
a.  $f(x) = \log_{\frac{1}{4}}(x)$

b.  $f(x) = \log_2(x)$

c.  $f(x) = -\log_3(x)$

d.  $f(x) = -\log_{\frac{1}{4}}(x)$





Select the name of the toolkit function in the graph.

Select an answer ▼

Select the equation of the toolkit function in the graph.

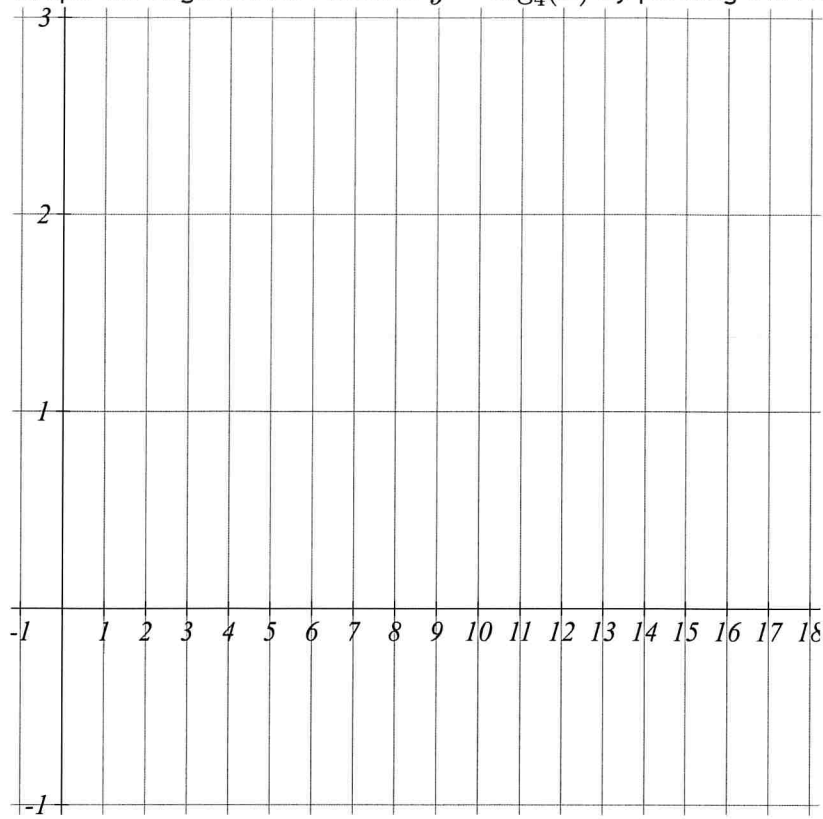
- ☐  $f(x) = \frac{1}{x}$
- ☐  $f(x) = |x|$
- ☐  $f(x) = x$
- ☐  $f(x) = \log(x)$
- ☐  $f(x) = 10^x$
- ☐  $f(x) = x^2$
- ☐  $f(x) = x^3$

Give the domain of the function in the graph.

Give the range of the function in the graph.

Question Help: ☐ Message instructor

Graph the Logarithmic Function  $y = \log_4(x)$  by plotting the Horizontal Intercept and one other point.



Question Help: ☐ Video ☒ Message instructor

## 6.5: Graded Homework

Nicole Cook

### ● Question 1

✓ 0/1 pt ↻ 3 ⇌ 99

Evaluate the following expression using your calculator. Round values to the nearest thousandths.

$$\log(2360) = \boxed{\phantom{0000000000}}$$

Question Help: ☒ Message instructor

### ● Question 2

✓ 0/1 pt ↻ 3 ⇌ 99

Evaluate using your calculator and round to 4 decimal places.

$$\log_{11} 44 = \underline{\hspace{2cm}}$$

Question Help: ☐ Video ☒ Message instructor

### ● Question 3

✓ 0/1 pt ↻ 3 ⇌ 99

Evaluate using your calculator and round to 4 decimal places:

$$\log_8 0.16 = \underline{\hspace{2cm}}$$

Question Help: ☐ Video ☒ Message instructor

### ● Question 4

✓ 0/1 pt ↻ 3 ⇌ 99

Evaluate using your calculator and round to 4 decimal places.

$$\log_{14} 79 = \underline{\hspace{2cm}}$$

Question Help: ☐ Video ☒ Message instructor

### ● Question 5

✓ 0/1 pt ↻ 3 ⇌ 99

Write the following sum as a single logarithm. Assume all variables are positive.

$$\log_3(4) + \log_3(13) = \boxed{\phantom{0000000000}}$$

The answer format in lowercase characters is: log\_base (number)  
Spaces in the answer are optional.

Question Help: ☐ Video ☒ Message instructor

### ● Question 6

✓ 0/1 pt ↻ 3 ⇌ 99

Simplify the following into a single logarithm:

$$4 \log(3) - 2 \log(x) =$$

Question Help: [Video](#) [Message instructor](#)

● Question 7

0/1 pt 3 99

Write the following sum as a single logarithm. Assume all variables are positive.

$$\log_3(c) + \log_3(c + 9) =$$

The answer format in lowercase characters is: log\_base (number)

Spaces in the answer are optional.

Question Help: [Video](#) [Message instructor](#)

● Question 8

0/1 pt 3 99

Write the following as a single logarithm. Assume all variables are positive.

$$\log_3(2) + 4 \log_3(b) =$$

The answer format in lowercase characters is: log\_base (number)

Spaces in the answer are optional.

Question Help: [Video](#) [Message instructor](#)

● Question 9

0/1 pt 3 99

Simplify the following into a single logarithm:

$$4 \log(9) + 4 \log(x)$$

☐  $\log(4 \cdot 9 \cdot 4x)$

☐  $\log(4 \cdot 9 \cdot x^4)$

☐  $\log(9^4 x^4)$

☐  $\log\left(\frac{4 \cdot 9}{4x}\right)$

☐  $\log\left(\frac{9^4}{x^4}\right)$

Question Help: [Message instructor](#)

● Question 10

0/1 pt 3 99

Which of the following are equivalent to  $\log_b(3)$ ? Choose all that apply.

☐  $-\log_b\left(\frac{1}{3}\right)$

☐  $\log_b(24) - \log_b(8)$

☐  $\log_b\left(\frac{1}{10}\right) + \log_b(30)$

☐  $\frac{1}{3}\log_b(27)$

☐  $\frac{1}{2}\log_b(9)$

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● Question 11

✓ 0/1 pt ↻ 3 ↺ 99

Rewrite  $\ln\left(\frac{1}{x^2}\right)$  using the exponent property for logs:

☐  $\frac{1}{2}\ln(x)$  ☐  $2\ln\left(\frac{1}{x}\right)$  ☐  $-2\ln(x)$  ☐  $2\ln(x)$  Hint

Question Help: [✉ Message instructor](#)

● Question 12

✓ 0/1 pt ↻ 3 ↺ 99

Use the power property to rewrite each expression. Assume all variables are positive.

$\log_2(a^2) =$

The answer format in lowercase characters is: log\_base (number)  
Spaces in the answer are optional.

Question Help: [▶ Video](#) [✉ Message instructor](#)

## 6.6: Graded Homework

Nicole Cook

### ● Question 1

✓ 0/1 pt ↻ 3 ⇌ 99

Find the solution of the exponential equation

$$e^{2x+1} = 34$$

in terms of logarithms, or correct to four decimal places.

$$x = \boxed{\phantom{0000000000}}$$

Question Help: [▶ Video](#) [✉ Message instructor](#)

### ● Question 2

✓ 0/1 pt ↻ 3 ⇌ 99

Solve the given equation for  $x$ .

$$4^{4x-4} = 31$$

$$x = \boxed{\phantom{0000000000}}$$

You may enter the exact value or round to 4 decimal places.

Question Help: [▶ Video](#) [✉ Message instructor](#)

### ● Question 3

✓ 0/1 pt ↻ 3 ⇌ 99

Find the solution of the exponential equation

$$1000(1.07)^{2t} = 500,000$$

in terms of logarithms, or correct to four decimal places.

$$t = \boxed{\phantom{0000000000}}$$

Question Help: [▶ Video](#) [✉ Message instructor](#)

### ● Question 4

✓ 0/1 pt ↻ 3 ⇌ 99

Use the like-bases property and exponents to solve the equation

$$\left(\frac{1}{2}\right)^{x-5} = 2^{2x+5}$$

$$x = \boxed{\phantom{0000000000}}$$

Question Help: [✉ Message instructor](#)

### ● Question 5

✓ 0/1 pt ↻ 3 ⇌ 99

Solve for  $x$ :  $6^x = 17$

The exact solution (using logarithms) is:  $x =$

The approximate answer, rounded to 4 decimal places, is:  $x =$

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 6

✓ 0/1 pt ↻ 3 ⇄ 99

Find the solution of the exponential equation  $e^{5x-3} = 4$

The exact solution is:  $x =$

The approximate solution, correct to four decimal places is  $x =$

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 7

✓ 0/1 pt ↻ 3 ⇄ 99

Find the solution of the exponential equation  $18e^{x-1} = 7$

The exact solution (using natural logarithms) is:  $x =$

The approximate solution, rounded to 4 decimal places is:  $x =$

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 8

✓ 0/1 pt ↻ 3 ⇄ 99

Solve for  $x$ :

$$\log(x) + \log(x + 2) = 3$$

$x =$

You may enter the exact value or round to 4 decimal places.

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 9

✓ 0/1 pt ↻ 3 ⇄ 99

Find the largest value of  $x$  that satisfies:

$$\log_3(x^2) - \log_3(x + 4) = 9$$

$x =$

You may enter the exact value or round to 4 decimal places.

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 10

✓ 0/1 pt ↻ 3 ⇌ 99

If  $\ln x + \ln(x - 2) = \ln(5x)$ , then  $x =$  .

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 11

✓ 0/1 pt ↻ 3 ⇌ 99

Solve for  $x$ :

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

$x =$

You may enter the exact value or round to 4 decimal places.

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 12

✓ 0/1 pt ↻ 3 ⇌ 99

Solve for  $x$ :

$$6^{6x-8} = 3^{2x-10}$$

$x =$  .

Question Help: [▶ Video](#) [✉ Message instructor](#)

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● Question 13

✓ 0/1 pt ↻ 3 ⇌ 99

Solve  $6^{8x+5} = 5^{x-3}$  for  $x$ . Give both the exact answer and the decimal approximation to the nearest hundredth. If logarithms are needed to solve the equation, use "ln."

Exact answer:

Decimal approximation:

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● Question 14

✓ 0/1 pt ↻ 3 🔁 99

Solve for  $n$  in the equation below. It may be helpful to convert the equation into exponential form. Write answer as an integer or reduced fraction.

$$-5 \cdot \log_6(n) + 10 = 20$$

$$n = \boxed{\phantom{000}}$$

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● Question 15

✓ 0/1 pt ↻ 3 🔁 99

Solve for  $w$  in the equation below. It may be helpful to convert the equation into exponential form.

$$\log_7 49 = w$$

$$w = \underline{\phantom{000}}$$

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● Question 16

✓ 0/1 pt ↻ 3 🔁 99

For these problems, use this formula for compounding interest continuously. Round answer to 2 decimal places.

$$A = Pe^{rt}$$

Find the time it takes for \$9,300 to double when invested at an annual interest rate of 18%, compounded continuously.

$$\boxed{\phantom{000}} \text{ years}$$

Find the time it takes for \$930,000 to double when invested at an annual interest rate of 18%, compounded continuously.

$$\boxed{\phantom{000}} \text{ years}$$

Question Help: [▶ Video](#) [✉ Message instructor](#)

● Question 17

✓ 0/1 pt ↻ 3 🔁 99

The half-life of Radium-226 is 1590 years. If a sample contains 300 mg, how many mg will remain after 4000 years?

$$\boxed{\phantom{000000}} \text{ mg}$$

Give your answer accurate to at least 2 decimal places.

Question Help: [▶ Video 1](#) [▶ Video 2](#) [✉ Message instructor](#)

The fox population in a certain region has a continuous growth rate of 8 percent per year. It is estimated that the population in the year 2000 was 23300.

(a) Find a function that models the population  $t$  years after 2000 ( $t = 0$  for 2000).

Hint: Use an exponential function with base  $e$ .

Your answer is  $P(t) =$

(b) Use the function from part (a) to estimate the fox population in the year 2008.

Your answer is (the answer must be an integer)

Question Help:  Video  Message instructor