SY25 Final Exam review : Chapter 4 Exam Questions

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Questions

Question 1

0/1 pt 3 99

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

$\log_r(t) = w$

$r^w = t$

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Question 2

0/1 pt 3 99

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

$9^z = r$

$\log_9(r) = z$ Hint

This problem will not automatically grade. The instructor will grade manually after the due date.

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Question 3

0/1 pt 3 99

Solve.

$\log_3(r) = 6$

$r =$ 729

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Question 4

0/1 pt 3 99

Find the logarithm.

$\log_2\left(2^{\frac{1}{5}}\right)=$ [ ] $\frac{1}{5}$

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Question 5

0/1 pt 3 99

Evaluate the following expressions.

$\log_4 0.00390625$ [ ] -4

$\log_8 0.001953125$ [ ] -3

$\log_{3125}\sqrt{5}$ [ ] 0.1

$\log_4 8$ [ ] 1.5

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Question 6

0/1 pt 3 99

Convert the exponential equations into logarithmic form:

(a) $2^4 = 16$ is equivalent to $\log_2 C = D$.

$C =$ [ ] 16 and $D =$ [ ] 4

(b) $1296 = 6^4$ is equivalent to $\log_6 E = F$.

$E =$ [ ] 1296 and $F =$ [ ] 4

(c) $10^3 = 1000$ is equivalent to $\log_{10} G = H$.

$G =$ [ ] 1000 and $H =$ [ ] 3

(d) $0.01 = 10^{-2}$ is equivalent to $\log_{10} J = K$.

$J =$ [ ] 0.01 and $K =$ [ ] -2

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Question 7

0/1 pt 3 99

The fox population in a certain region has an annual growth rate of 8 percent per year. It is estimated that the population in the year 2000 was 20600.

(a) Find a function that models the population t years after 2000 ($t = 0$ for 2000).
Your answer is $P(t) =$ [ ] $20600 \cdot (1.08)^t$

(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) [ ] 38129

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Question 8

0/1 pt 3 99

Find a formula for the exponential function passing through the points (-1, $\frac{5}{4}$) and (1,20)

y = [ ] $5 \cdot (4)^x$

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Question 9

0/1 pt 3 99

A house was valued at $125,000 in the year 1991. The value appreciated to $155,000 by the year 2006.

Use the compound interest formula $S = P(1 + r)^t$ to answer the following questions.

A) What was the annual growth rate between 1991 and 2006?
r = [ ] 0.0144 *Round the growth rate to 4 decimal places.*

B) What is the correct answer to part A written in percentage form?
r = [ ] 1.44 %.

C) Assume that the house value continues to grow by the same percentage. What will the value equal in the year 2011 ?
value = $ [ ] 166000 or 167000 or 165000 *Round to the nearest thousand dollars.*

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Question 10

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).

Your answer is $P(t) =$ [ ] $17000 \cdot e^{0.08 \cdot t}$

(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) [ ] 32240

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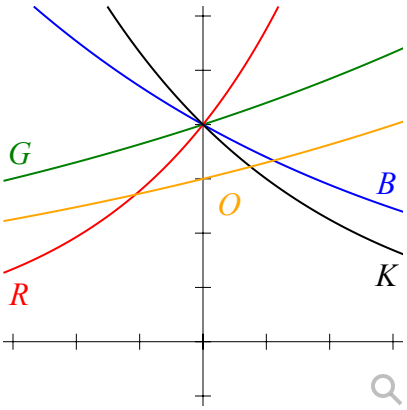
Question 11

0/1 pt 3 99



Match each equation with a graph above

- $4(0.85)^x$	a. red (R)
- $4(1.1)^x$	b. green (G)
- $4(1.44)^x$	c. blue (B)
- $4(0.75)^x$	d. black (K)
- $3(1.1)^x$	e. orange (O)

c b a d e

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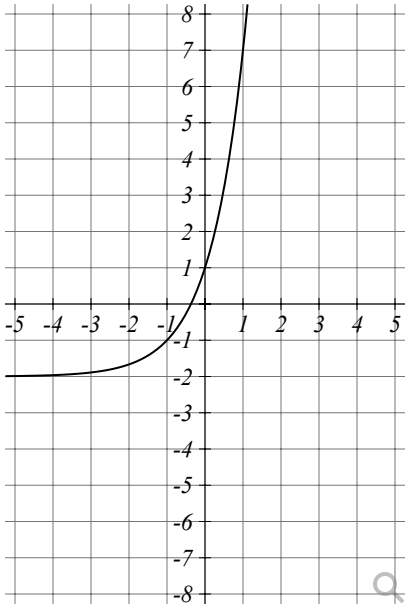
Question 12

0/1 pt 3 99

Find an equation for the graph sketched below



$f(x) =$ [ ] $3 \cdot (3)^x - 2$

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Question 13

0/1 pt 3 99

Find the logarithm.

$\log_{10}(1,000,000) =$ [ ] 6

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Question 14

0/1 pt 3 99

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

(a) $\ln e^{11} =$ _____ 11

(b) $e^{\ln 5} =$ _____ 5

(c) $e^{\ln \sqrt{2}} =$ _____ 1.4142135623731

(d) $\ln\left(\frac{1}{e^2}\right) =$ _____ -2

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Question 15 0/1 pt 3 99

Solve for x: $4^x = 50$

$x =$ _____ 2.8219280948874

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Question 16 0/1 pt 3 99

If $e^{4x} = 16$, then $x =$ _____ 0.69314718055995 .

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Question 17 0/1 pt 3 99

Convert the equation $f(t) = 399(0.7)^t$ to the form $f(t) = ae^{kt}$

$a =$ _____ 399

$k =$ _____ -0.35667494393873

Give values accurate to three decimal places

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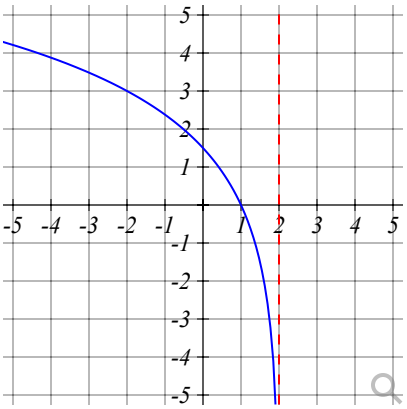
Question 18 0/1 pt 3 99

Write an equation for the transformed logarithm shown below, that passes through (1,0) and (-2,3)



$f(x) =$ $\frac{3}{\log(4)}\log(2-x)$ or $3\log_4(2-x)$

Question Help: Video 1 Video 2

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