

MATH105 COLLEGE ALGEBRA (MATH105-2) EXAMS TAKE ASSESSMENT EXAM 4

## Take Assessment: Exam 4

Name Exam 4

Instructions

Multiple Attempts This Test allows 2 attempts. This is attempt number 2.

Force Completion This Test can be saved and resumed later.

### ▼ Question Completion Status:

#### Question 1

5 points [Save](#)

Determine whether the given function is exponential or not. If it is exponential, identify the value of the base  $a$ .

$x$	$H(x)$
-1	2
0	9
1	16
2	23
3	30

- Exponential;  $a = 9$
- Exponential;  $a = 7$
- Exponential;  $a = 2$
- Not exponential

#### Question 2

5 points [Save](#)

Find the domain of the function.

$$f(x) = 2 - \ln(7x)$$

- $(7, \infty)$
- $(-\infty, 2) \cup (7, \infty)$
- $(-2, 7)$
- $(0, \infty)$

#### Question 3

5 points [Save](#)

Solve the problem.

Which of the two rates would yield the larger amount in 1 year: 4.5% compounded semiannually or 4.4% compounded quarterly?

- 4.5% compounded semiannually
- 4.4% compounded quarterly
- They will yield the same amount.

## Question 4

5 points [Save](#)**Solve the problem.**

The function  $A = A_0e^{-0.0099x}$  models the amount in pounds of a particular radioactive material stored in a concrete vault, where  $x$  is the number of years since the material was put into the vault. If 400 pounds of the material are initially put into the vault, how many pounds will be left after 40 years?

- 350 pounds
- 269 pounds
- 114 pounds
- 119 pounds

## Question 5

5 points [Save](#)**Change the exponential expression to an equivalent expression involving a logarithm.**

$$5^x = 125$$

- $\log_{125} x = 5$
- $\log_5 125 = x$
- $\log_{125} 5 = x$
- $\log_x 125 = 5$

## Question 6

5 points [Save](#)**Find the amount that results from the investment.**

\$1,000 invested at 9% compounded annually after a period of 8 years

- \$1828.04
- \$1992.56
- \$2171.89
- \$992.56

## Question 7

5 points [Save](#)**Find the exact value of the logarithmic expression.**

$$\log_4 \frac{1}{64}$$

- 3
- $\frac{1}{3}$
- 3
- $-\frac{1}{3}$

## Question 8

5 points [Save](#)

Change the logarithmic expression to an equivalent expression involving an exponent.

$$\log_{\sqrt{3}} 64 = \frac{7}{11}$$

- $\sqrt{3}^{117} = 64$   
  $\sqrt{3}^{711} = 64$   
  $\left(\frac{7}{11}\right)\sqrt{3} = 64$   
  $64^{11} = \sqrt{3}$

## Question 9

5 points [Save](#)

Change the logarithmic expression to an equivalent expression involving an exponent.

$$\ln \frac{1}{e^6} = -6$$

- $e^{-6} = \frac{1}{e^6}$   
  $\left(\frac{1}{e^6}\right)^{-6} = e$   
  $-6^e = \frac{1}{e^6}$   
  $\left(\frac{1}{e^6}\right)^e = -6$

## Question 10

5 points [Save](#)

Find the indicated composite for the pair of functions.

$$(f \circ g)(x): f(x) = \sqrt{x+3}, g(x) = 8x - 7$$

- $8\sqrt{x-4}$   
  $8\sqrt{x+3} - 7$   
  $2\sqrt{2x+1}$   
  $2\sqrt{2x-1}$

## Question 11

5 points [Save](#)

Find functions f and g so that the composition of f and g is H.

$$H(x) = |4 - 3x^2|$$

- $f(x) = x^2; g(x) = 4 - 3|x|$   
  $f(x) = 4 - 3|x|; g(x) = x^2$

- $f(x) = |x|$ ;  $g(x) = 4 - 3x^2$
- $f(x) = 4 - 3x^2$ ;  $g(x) = |x|$

## Question 12

5 points

Save

Decide whether the composite functions,  $f \circ g$  and  $g \circ f$ , are equal to  $x$ .

$$f(x) = 5\sqrt{x-13}, \quad g(x) = x^5 + 13$$

- No, no
- No, yes
- Yes, no
- Yes, yes

## Question 13

5 points

Save

Solve the problem.

A local bank advertises that it pays interest on savings accounts at the rate of 3% compounded monthly. Find the effective rate. Round answer to two decimal places.

- 3.44%
- 3.40%
- 36%
- 3.04%

## Question 14

5 points

Save

Solve the equation.

$$\log(x + 5) = \log(5x - 3)$$

- $\{-2\}$
- $\left\{\frac{2}{2}\right\}$
- $\left\{\frac{4}{3}\right\}$
- $\{2\}$

## Question 15

5 points

Save

The function  $f$  is one-to-one. Find its inverse.

$$f(x) = (x - 8)^3$$

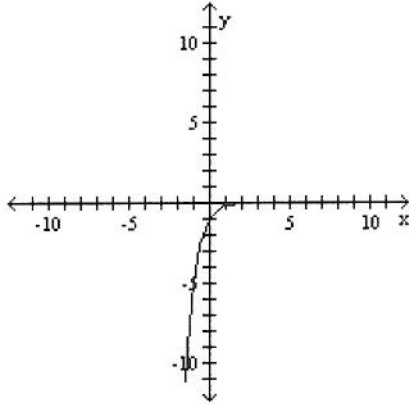
- $f^{-1}(x) = 3\sqrt{x} + 8$
- $f^{-1}(x) = 3\sqrt{x} - 8$
- $f^{-1}(x) = 3\sqrt{x} + 512$

$f^{-1}(x) = \sqrt{x} + 8$

## Question 16

5 points Save

The graph of an exponential function is given. Match the graph to one of the following functions.



$f(x) = -5^x$

$f(x) = 5^x$

$f(x) = 5^{-x}$

$f(x) = -5^{-x}$

## Question 17

5 points Save

Find the indicated composite for the pair of functions.

$(f \circ g)(x)$ :  $f(x) = 3x + 8$ ,  $g(x) = 3x - 1$

$9x + 7$

$9x + 11$

$9x + 5$

$9x + 23$

## Question 18

5 points Save

The function  $f$  is one-to-one. Find its inverse.

$f(x) = 3\sqrt{x+4}$

$f^{-1}(x) = x^3 + 16$

$f^{-1}(x) = x - 4$

$f^{-1}(x) = \frac{1}{x^3 - 4}$

$f^{-1}(x) = x^3 - 4$

## Question 19

5 points Save

**Solve the problem.**

$\text{pH} = -\log_{10}[\text{H}^+]$  Find the  $[\text{H}^+]$  if the  $\text{pH} = 8.4$ .

- $3.98 \times 10^{-8}$
- $2.51 \times 10^{-8}$
- $3.98 \times 10^{-9}$
- $2.51 \times 10^{-9}$

**Question 20**

**5 points** [Save](#)

**Find the exact value of the logarithmic expression.**

$\ln |$

- 1
- 0
- e
- 1

[Save](#)

[Submit](#)