

Student: \_\_\_\_\_  
Date: \_\_\_\_\_

Instructor: Carole Cox  
Course: AP Calculus AB Summer 2019

Assignment: Summer 1.4

1. Solve for y in terms of t.

$$\ln(y - 33) = 6t$$

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

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2. Solve for k.

a.  $e^{6k} = 64$

b.  $35e^{6k} = 175$

c.  $e^{k/6} = a$

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a. If  $e^{6k} = 64$ , then  $k = \underline{\hspace{2cm}}$ .

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

b. If  $35e^{6k} = 175$ , then  $k = \underline{\hspace{2cm}}$ .

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

c. If  $e^{k/6} = a$ , then  $k = \underline{\hspace{2cm}}$ .

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

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3. Find simpler expressions for the following.

a. Write the expression  $e^{\ln 8.1}$  without using either e or ln.

b. Write the expression  $e^{-\ln(8x^2)}$  without using either e or ln.

c. Write the expression  $e^{\ln(7x) - \ln(9y)}$  without using either e or ln.

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The expression  $e^{\ln 8.1}$  without using either e or ln is  $\underline{\hspace{2cm}}$ .

(Simplify your answer. Use integers or decimals for any numbers in the expression.)

The expression  $e^{-\ln(8x^2)}$  without using either e or ln is  $\underline{\hspace{2cm}}$ .

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

The expression  $e^{\ln(7x) - \ln(9y)}$  without using either e or ln is  $\underline{\hspace{2cm}}$ .

(Simplify your answer. Use integers or fractions for any numbers in the expression.)

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4. Find the logarithm.

$$\log_2 \sqrt[6]{2}$$

$$\log_2 \sqrt[6]{2} = \underline{\hspace{2cm}}$$

(Type a fraction.)

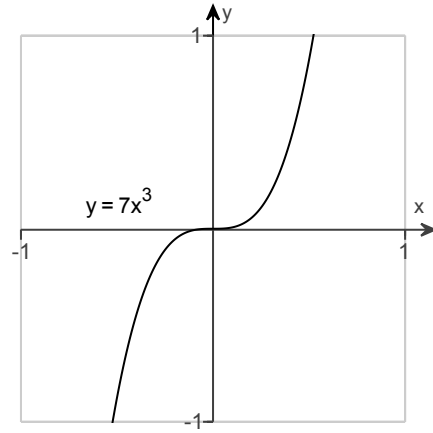
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5. Determine whether the function is one-to-one.

$$y = 7x^3$$

Is the function one-to-one?

- Yes  
 No



6. Determine whether the function has an inverse function.

$$y = \frac{-5}{x+5}$$

Does this function have an inverse function?

- No  
 Yes

7. Find a formula for the inverse.

$$f(x) = x^3 - 9$$

$$f^{-1}(x) = \underline{\hspace{2cm}}$$

8. Find an approximate rational solution to  $2^x = 7$ .

The solution set is {                    }.  
(Round to four decimal places.)

9. Solve the exponential equation algebraically.

$$e^x + e^{-x} = 5$$

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

(Use a comma to separate answers. Do not round until the final answer. Then round to the nearest hundredth as needed.)

10. Solve for y.

$$\ln y = 4t + 3$$

$$y = \underline{\hspace{2cm}} \text{ (Type an exact answer.)}$$

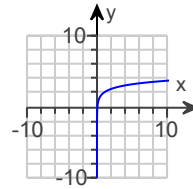
11. Identify the graph. Then find the domain.

$$y = \log_4(x) - 2$$

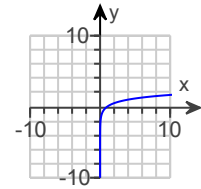
Choose the correct graph on the right.

The domain of the function is \_\_\_\_\_.  
(Type your answer in interval notation.)

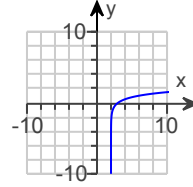
A.



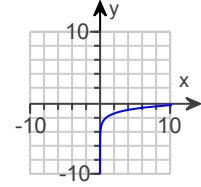
B.



C.



D.



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Assignment: Summer 1.5

1. Find the arc length subtended on a circle of radius 15 by a central angle of measure  $\frac{\pi}{3}$ .

The arc length is \_\_\_\_\_.  
(Simplify your answer. Type an exact answer, using  $\pi$  as needed.)

2. Find the measure of the central angle  $\theta$ , in radians.

$$s = 16 \text{ cm}; r = 4 \text{ cm}$$

$\theta =$  \_\_\_\_\_  
(Type your answer in radians.)

3. Determine if the function is even or odd.

cosine

Is the function even or odd?

- Odd  
 Even

4. Either  $\sin x$ ,  $\cos x$ , or  $\tan x$  is given. Find the other two if  $x$  lies in the specified interval.

$$\tan x = \frac{3}{4}, \quad x \in \left[0, \frac{\pi}{2}\right]$$

$\cos x =$  \_\_\_\_\_  
(Type a simplified fraction.)

$\sin x =$  \_\_\_\_\_  
(Type a simplified fraction.)

5. Determine the amplitude, period, and phase shift of  $y = -2 \cos \left(\frac{\pi}{3}x + \pi\right)$ .

The amplitude is \_\_\_\_\_. The period is \_\_\_\_\_. The phase shift is \_\_\_\_\_.

6. Give the measure of the angle in radians and degrees.

$$\sin^{-1}(-1)$$

What is the measure of the angle in radians?

$\sin^{-1}(-1) =$  \_\_\_\_\_  
(Simplify your answer. Type your answer in radians. Type an exact answer, using  $\pi$  as needed.)

What is the measure of the angle in degrees?

$\sin^{-1}(-1) =$  \_\_\_\_\_<sup>°</sup>  
(Simplify your answer. Type your answer in degrees. Type an exact answer, using  $\pi$  as needed.)

7. Use a calculator to solve the equation on the interval  $0 \leq \theta < 2\pi$ .

$$\sin \theta = 0.11$$

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What are the solutions in the interval  $0 \leq \theta < 2\pi$ ? Select the correct choice and fill in any answer boxes in your choice below.

- A.** The solution set is  $\{\underline{\hspace{2cm}}\}$ .  
(Type your answer in radians. Round to two decimal places as needed. Use a comma to separate answers as needed.)
- B.** There is no solution.

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8. Find all real numbers that satisfy the equation. Do not use a calculator.

$$2 \sin x = \sqrt{3}$$

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The equation  $2 \sin x = \sqrt{3}$  has solutions  $\{x \mid x = \underline{\hspace{2cm}} + 2\pi k\}$  and  $\{x \mid x = \underline{\hspace{2cm}} + 2\pi k\}$ .  
(Type an integer or a fraction. Type the lower valued terminal angle first, in radian form.)

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9. Find the exact value of the expression.

$$\tan \left( \sin^{-1} \left( -\frac{\sqrt{2}}{2} \right) \right)$$

$$\tan \left( \sin^{-1} \left( -\frac{\sqrt{2}}{2} \right) \right) = \underline{\hspace{2cm}}$$

(Type an exact answer, using radicals as needed.)