

Pre-Calculus B
Final Review Part 1

Name _____

1. Write as the sum and/or difference of logarithms. Express powers as factors. (5.5)

$$\log_{19} \frac{\sqrt[10]{7}}{y^2x}$$

2. Express as a single logarithm. (5.5)

$$3\log_4 5 - \frac{1}{7}\log_4(x-1) - \frac{1}{3}\log_4 x$$

3. Evaluate the logarithm to three decimal places. (5.5)

$$\log_{3.5} 21$$

4. Solve the equation. (5.6)

$$\log_3(x-1) = 4$$

5. Solve the equation. (5.6)

$$\log_2(x+4) + \log_2(x-2) = 4$$

6. Solve the equation. (5.6)

$$4^{(5-3x)} = \frac{1}{256}$$

7. Solve the equation. Round the answer to two decimal places. (5.6)

$$e^{5x} = 2$$

8. Find the amount that results from the investment: \$12000 invested at 11% compounded quarterly after a period of 7 years. (5.7)

11. How long does it take \$1125 to double if it is invested at 5% interest, compounded monthly? Round the answer to the nearest tenth. (5.7)

9. How long will it take for \$8000 to grow to \$31200 at an interest rate of 4.3% if the interest is compounded continuously? Round the number of years to the nearest hundredth. (5.7)

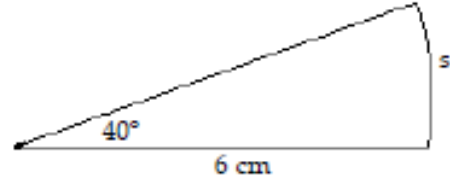
12. The half-life of plutonium-234 is 9 hours. If 10 grams is present now, how much will be present in 48 hours? Round the answer to three decimal places. (5.8)

10. How long will it take for an investment to triple in value if it earns 6.5% compounded continuously? Round to three decimal places. (5.7)

13. The logistic growth model $P(t) = \frac{980}{1+27e^{-0.352t}}$ represents the population of bacterium in a culture tube after t hours. What was the initial amount of bacteria in the population? (5.8)

14. The logistic growth model $P(t) = \frac{92000}{1+1313.3e^{-1.8t}}$ models the number of people who have become ill with a particular infection t weeks after its initial outbreak in a particular community. How many people were ill after 9 weeks? (5.8)

17. Find the length s . Round the answer to three decimal places. (6.1)



15. Convert the angle to a decimal in degrees rounded to two decimal places. (6.1)

$$331^{\circ}53'32''$$

18. Convert the angle in degrees to radians. Express the answer as a multiple of π . (6.1)

$$87^{\circ}$$

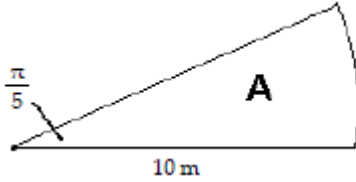
16. Convert the angle to D°M'S'' form rounded to the nearest second. (6.1)

$$178.53^{\circ}$$

19. Convert the angle in radians to degrees. (6.1)

$$\frac{8\pi}{9}$$

20. Find the area A. Round the answer to three decimal places. (6.1)



21. In the problem, t is a real number and $P = (x, y)$ is the point on the unit circle that corresponds to t . Find the exact value of the indicated trigonometric function of t . (6.2)

$$\left(\frac{-\sqrt{33}}{7}, \frac{4}{7}\right) \quad \text{Find } \cos t.$$

22. Approximate the value of the expression to two decimal places. (6.2)

$$\cot \frac{\pi}{12}$$

23. A point on the terminal side of an angle θ is given. Find the exact value of the indicated trigonometric function of θ . (6.2)

$$(-2, -1) \quad \text{Find } \sec \theta.$$

24. Find the exact value of the expression. (6.3)

$$\cot 750^\circ$$

25. Find the exact value of the expression. (6.3)

$$\sec \frac{13\pi}{4}$$

26. Name the quadrant in which the terminal side of the angle θ lies. (6.3)

$$\cos \theta < 0, \csc \theta < 0$$

27. In the problem, $\sin \theta$ and $\cos \theta$ are given. Find the exact value of the indicated trigonometric function. (6.3)

$$\sin \theta = \frac{1}{4}, \cos \theta = \frac{\sqrt{15}}{4} \quad \text{Find } \cot \theta.$$

28. Find the exact value of the indicated trigonometric function of θ . (6.3)

$$\sec \theta = \frac{9}{2}, \theta \text{ in quadrant IV} \quad \text{Find } \tan \theta.$$

29. Graph $y = 2 \sin x$. Include one full period. (6.4)

30. Graph $y = \sin x - 2$. Include one full period. (6.4)