AP Calculus AB

2019 Summary Assignment

Teacher: Bernardo Room 350

The purpose of this assignment is to review important Pre-Calculus and Algebra II skills that are essential prerequisites for this calculus course. The estimated time of completion should be approximately 2 hours.

Due: Thursday September 5th during class

Name: _____

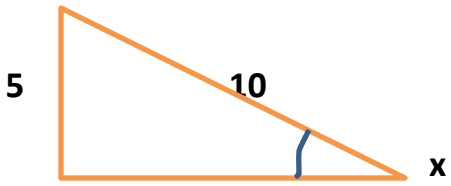
Complete exercises #1-3 without a calculator. ***Trigonometric values should be simplified when necessary. (No decimal answers!!!)***

1) **Find all six trigonometric values for x for Δ ABC. (6pts)**

a) sin x = _____ **b) cos x = _____**

c) tan x= _____ **d) cot x = _____**

e) sec x = _____ **f) csc x = _____**



2) **Give the exact value for each of the following. No decimal answers. (10 pts)**

a) sin $\frac{\pi}{4}$ = _____ **b) tan $\frac{4\pi}{3}$ = _____**

c) cos $\frac{5\pi}{6}$ = _____ **d) sin $\frac{-\pi}{2}$ = _____**

e) cot $\frac{5\pi}{4}$ = _____ **f) cos π = _____**

g) sec $\frac{7\pi}{4}$ = _____ **h) sin $\frac{2\pi}{3}$ = _____**

i) sin π = _____ **j) tan $\frac{11\pi}{6}$ = _____**

3) Point P(-1, $\sqrt{3}$) is on the terminal side of angle θ. Draw a diagram of the triangle and find all six trigonometric ratios for θ. (6 pts)

Sin θ= _____ cos θ= _____ tan θ = _____

Cot θ = _____ sec θ= _____ csc θ = _____

4) Fill in the missing term for each trigonometric identity listed below. These are identities that you will need to know for AP Calculus. (1 pt each)

a) $sin^2x +$ _____ $= 1$

b) $tan^2x +$ _____ $= sec^2x$

c) _____ $= \frac{\sin x}{\cos x}$

d) sin(2x) = _____

e) cos (2x) = $cos^2x -$ _____

f) _____ = $\frac{1}{\csc(x)}$

g) cos(-x) = _____

h) sin (-x) = _____

5) State the amplitude, period, phase shift, domain, and range for the sinusoid y = 4.5 cos (3x - $\frac{\pi}{2}$). (5pts)

a) amplitude = _____ **b) period= _____**

c) phase shift = _____ **d) domain = _____**

e) range = _____

6) Reduce the expression in terms of sin x and cos x only. (2 pts)

$$2cos^2x - cos(2x) - sin^2x$$

7) Find all solutions for x on [0, 2π) for the following trig equation: Solutions should be exact—no decimal answers. (4 pts)

sin x = sin (2x)

8) State the domain for each of the following functions: (4 pts)

a) f(x) = $\sqrt{5-x}$ **Domain = _____**

b) g(x) = $\frac{3}{1-x}$ **Domain = _____**

c) h(x) = ln (x-2) Domain = _____

d) y = (x-4)^2 Domain = _____

9) State the vertical and horizontal asymptotes for the function

$$y = \frac{2}{x^2-2x}$$

10) Simplify algebraically and show all steps. (2 pts each)

a) $\frac{-28u^8}{16u^4}$ **b)** $\frac{(4y^4)(5y^5)}{(8y^3)(y^6)}$ **c)** $\frac{(3y^2)^4)}{(6y)^2}$

d) $\frac{-2s^2(8t^2)(5st)}{6s^3t^2(5st^3)}$ **e)** $\frac{(3x^2y)^4}{(9xy^2)^2}$

Perform the indicated operations. Show all steps to receive full credit. Reduce answers to simplest terms. (2 pts each)

11) $\frac{a^3}{2b} * \frac{3a^2}{4b}$

12) $\frac{3x^3}{-4y} * \frac{16y^5}{12x^3}$

13) $10a^2 + \frac{2a}{5b}$

14. $\frac{x^2}{10} \div (\frac{2}{x} + \frac{x}{5})$

15. $\frac{3}{4} - \frac{5}{18} - \frac{1}{9}$

16. $\frac{4}{x^3} + \frac{7}{y}$

Solve each equation. Reduce all answers to lowest terms. Show all steps!(2 pts each)

17. $\frac{y}{3} - \frac{y}{9} = 4$

18. $\frac{x-2}{6} - 2 = \frac{x-1}{9}$

19. $\frac{x+2}{14} - \frac{4x+1}{7} = 1$

20. Use logarithmic properties to rewrite the expression as one log expression.

a) 2lnx + 5lny

b) ½ log (x) – log(y)

Solve. (5 pts each)

21. Carrie deposited $ 225 in an account that pays 3.75% annual interest compounded monthly. How long will it take for her money to double in size assuming no other changes occurred to the account.

22. The half-life of a phosphorus-32 is about 14 days. There are 5 grams present initially. When will there be 1 gram left? Round you answer to the thousandth place.

23. Suppose that at the beginning of the day a colony of bacteria starts with one bacterium and doubles in number every ½ hour. How many bacteria will the colony contain at the end of day?