**Trigonometry 2**

**1.** Solve for .

 For , , where n is an integer.

 Since ,

 For , , where n is an integer.

 Since , .

**2.** Show that for all values of θ ,

 (a)

 (b)

 (c) .

 (a)

 (b)

 , by (a), replace by

 (c) Consider:

 , and using (a)

 Hence,

**3.**  Prove .

 R.H.S. =

 =

 =

 =

 =

 =

 =

 =

 = L.H.S.

**4.** Given that . Use the substitution ,show that .

 Hence, or otherwise, prove that .

 Let ,

 Since is real ,

**5.** Sketch a graph in the range . Hence, find the set of values of ,

 where , satisfying the inequality .



 For the equation,

 We get and .

 By drawing the horizontal line , we get the solution for

 and hence is .

**6.** Solve for .

 Put then

 Use numerical method such as Newton’s method to solve for the real roots:

**7.** If , simplify . Use your result to find the sum of the first n terms of the series .

 Sum of the first n terms of the series

 =

**8.** Solve the equation .

 By drawing right angled triangles, we have

 Therefore

 Squaring,

 ,

 Solving, , using only the positive root.

**9.** Prove that .

 Hence, find the value of , leaving your answer in surd form.

**Yue Kwok Choy**

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