TD3 :Sequence, Series and Trigonometry

Exercise 1 : *Read the following expressions.*

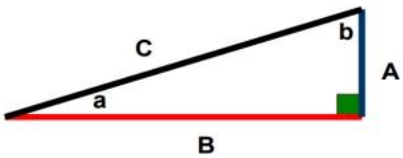
1. (Formulas for Addition and Subtraction)
   sin(A + B) = sin A cos B + cos A sin B
   cos(A - B) = cos A cos B + sin A sin B
   tan(A + B) = tan A + tan B / (1 - tan A tan B)
2. (Phytagorean Identities)
   $sin^2\theta + cos^2\theta = 1$
   $tan^2\theta + 1 = sec^2\theta$
3. (Formula for Double Angle)
   sin 2A = 2 sin A cos A
4. (Formula for half angle)
5. cos $\frac{\theta}{2} = \pm \sqrt{\frac{1+\cos\theta}{2}}$.
6. (Cosine Rule)
   $a^2 = b^2 + c^2 - 2bc \cos A$

Exercise 2: *Complete the sentences or give short answers.*

1. Tangent has positive values for angles in _____, and _____ has positive values for angles in Quadrant IV.
2. The tangent and cotangent functions have the period _____
3. If sin α = 0.8, then the value of sin (180-α) is _____ and the value of tan α is _____
4. Without using calculator, find cos(150).
5. Find the values of x for which sin 3x = 0.5 if it is given that 0<x

Exercise 3: *Say anything about trigonometry of the picture below*

For example: sin a equals to the sideA over the side C



Exercise 4: *Fill the blank spaces with the right words.*

a. In the fraction seven ninths, _____ is the numerator, and _____ is the _____.
b. The _____ of two thirds and a half is four over three.
c. An integer plus a fraction makes a _____.

Exercise 5:

1. Find the first 6 terms and the 300th term of the arithmetic sequence 13, 7, ...
2. The 10th term of an arithmetic sequence is 55 and the 2nd term is 7. Find the 1st term.
3. Find the sum of the first 40 terms of the arithmetic sequence 3, 7, 11, 15, ...
4. Find the 8th term of the geometric sequence 5, 15, 45, ...
5. The 3rd term of a geometric sequence is 63/4, and the 6th term is 1701/32. Find the 8th term.
6. Find the sum of the first 5 terms of the geometric sequence 1, 0.7, 0.49, 0.343, ...