The summer assignment for Math Year 1 is in two parts.

1. Please work the attached problems in the summer assignment (Part B) before you return to school next fall. You will need these skills as we enter the IB Math SL curriculum. You will be given an opportunity to ask questions about these problems during the first week of class. I will not collect these problems, but you will have a quiz on this material during the first week of class.

2. Also, work out the solutions for the ACT Practice test that is included in part A. Please print and fill out the answer sheet that is included in this document. We will grade it on the first full day of class.

I have included a list of other items for the coming year.

1. You will need a graphing calculator for this class. I do have a few old ones, but I cannot guarantee that one will be available for you to use. Also, my calculators are for class work only. You will need your own calculator to do homework and other assignments outside of class. I suggest the TI-83 or TI-84 if you want me to be able to help you operate it.

2. Most of the first year topics are familiar from Algebra 2. We will look much deeper into these topics, but most should not be new. It will be your job to practice outside of class as you see necessary to keep up.

3. I do not collect homework. I do grade your mastery on quizzes. I may from time-to-time assign a problem or two to be done outside of class and turned in for grading purposes.

If you have any questions, please feel free to email me at tommy.eggleston@knoxschools.org.
Summer Assignment

Solve each system.

1) \(-3x + 12y = 15\)  
   \(-10x - 6y = 18\)

2) \(-9x + 12y = 0\)  
   \(-5x + 3y = 22\)

3) \(x - 5y = 21\)  
   \(-8x + 5y = 7\)

4) \(x + 4y = -12\)  
   \(-2x - 7y = 21\)

Solve each equation.

5) \(3n^2 = 105 + 6n\)  
6) \(x^2 - 40 = -3x\)

7) \(n^2 - 6n - 83 = 8\)  
8) \(9b^2 - 18b = 7\)

Find each term described.

9) 3rd term in expansion of \((y^2 + x)^4\)  
10) 3rd term in expansion of \((2x^2 - 1)^4\)

Find the inverse of each function.

11) \(f(x) = 3 + (x + 1)^5\)  
12) \(g(x) = \frac{-4}{x - 2} - 3\)
Perform the indicated operation.

13) \( g(a) = 4a + 1 \)
   \( h(a) = a^2 - 4 \)
   Find \( g(a) \cdot h(a) \)

14) \( h(x) = 3x + 4 \)
   \( g(x) = -3x^2 + 1 \)
   Find \( h(x) - g(x) \)

15) \( g(x) = x - 5 \)
   \( f(x) = 4x \)
   Find \( g(f(x)) \)

16) \( f(x) = x^3 + 4 \)
   \( g(x) = 4x + 1 \)
   Find \( (f \circ g)(x) \)

Solve each equation.

17) \( 16^{x+7} - 6 = 0 \)

18) \( 15^{-2x} + 7 = 87 \)

Solve each triangle. Round answers to the nearest tenth.

19)

\[
\begin{align*}
B & \quad 9.5 \\
A & \quad 8.3 \\
C & \quad 6.3
\end{align*}
\]

20)

\[
\begin{align*}
B & \quad 6.3 \\
A & \quad 42^\circ \\
C & \quad 9.5
\end{align*}
\]

Solve each equation for \( 0 \leq \theta < 360 \).

21) \( -5 = -5 + \tan (\theta + 90) \)

22) \( \frac{-5}{2} = -2 + \cos \frac{\theta}{2} \)
Answers to Summer Assignment (ID: 1)

1) \((3, 2)\)  
2) \((-8, -6)\)  
3) \((-4, -5)\)  
4) \((0, -3)\)  
5) \([7, -5]\)  
6) \([5, -8]\)  
7) \([13, -7]\)  
8) \([\frac{7}{3}, -\frac{1}{3}]\)  
9) \(6y^4x^2\)  
10) \(24x^4\)  
11) \(f^{-1}(x) = \sqrt[5]{x} - 3 - 1\)  
12) \(g^{-1}(x) = \frac{4}{-x - 3} + 2\)  
13) \(4a^3 + a^2 - 16a - 4\)  
14) \(3x^2 + 3x + 3\)  
15) \(4x - 5\)  
16) \(64x^3 + 48x^2 + 12x + 5\)  
17) \(-6.3538\)  
18) \(-0.8091\)  
19) \(m\angle B = 41.1°, \ m\angle A = 48.9°, \ c = 12.6\)  
20) \(m\angle B = 48°, \ b = 7, \ c = 9.4\)  
21) \([90, 270]\)  
22) \([240]\)