1. Introduce yourself to the rest of your group. Tell them where you’re from and something interesting you did over the summer.

2. Sketch the graph of the function
   \[ f(t) = 1 - e^{-t}. \]
   What are its domain and range?

3. A quadratic function \( f(x) \) is one of the form
   \[ f(x) = ax^2 + bx + c \]
   where \( a, b \) and \( c \) are real numbers and \( a \neq 0 \). Examples of quadratic functions are \( f(x) = 10x^2 \), \( f(x) = -x^2 + \frac{1}{2} \) and \( f(x) = x^2 - \sqrt{2}x - 1 \).
   
   (a) Can you find a quadratic function whose graph doesn’t intersect the \( x \)-axis? One whose graph intersects the \( x \)-axis just once? How about twice? More than twice?
   
   (b) Can the graph of a quadratic function intersect the line \( y = 10 \) more than twice? How about the line \( y = x \)?
   
   (c) Can the graphs of two different quadratic functions intersect one another more than twice?

Worksheet guidelines

- Write your names on the blackboard before you start working. (This will help me learn them faster!)

- If you don’t understand the problem or you get stuck, make sure to give everyone in the group a chance to figure it out. If you’re still stuck, call me over and I’ll help out.

- Try not to erase your work before I’ve had the chance to look it over. When you’ve finished a problem and everybody in the group understands the solution, call me over to check your work.