Version 1 MAT 115: Standard Quiz 1B Name:

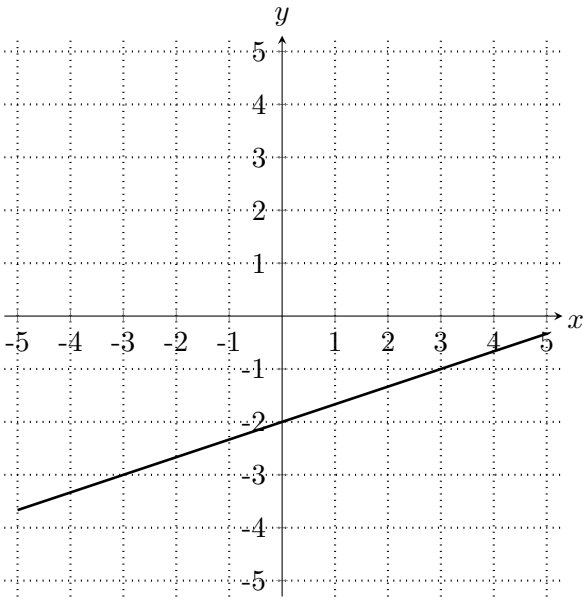
Instructions: Answer the questions below as completely as you can. Show all of your work and use complete sentences where appropriates. Graphing calculators are not allowed.

1. Find equations for the lines described below. **Simplify your answers**.

   (a) The line through the points $(2, -4)$ and $(-1, 7)$.

   (b) The line perpendicular to $y = -\frac{2}{5}x - 4$ through the point $(6, 1)$.

   (c) The line graphed below:



2. A biologist is growing bacteria in a petri dish and they grow at a constant rate. After four hours there were 148 bacteria in the dish, and after seven hours there were 184 bacteria.

   (a) If y is the number of bacteria after t hours, give a linear equation for y in terms of t.

   (b) What is the slope of your equation in part (a)? What is its practical interpretation? *Write your answer in a complete sentence, including units.*

   (c) Use your equation from part (a), how many bacteria will there be in the dish after one day? *Write your answer in a complete sentence, including units.*

   (d) When will there be 220 bacteria in the petri dish? *Write your answer in a complete sentence, including units.*