1. The Kelvin temperature scale is very similar to the Celsius temperature scale, except that zero degrees Kelvin is *absolute zero*, the lowest physically conceivable temperature. Zero degrees Kelvin is -273.16 degrees Celsius.¹

Write a program that prompts for and inputs a temperature in degrees Kelvin, then *idiot-proofs*, then calculates the associated temperature in degrees Celsius, then outputs the temperature in degrees Celsius.

You **DON’T** have to use comments. Otherwise, all rules for Programming Projects (through PP#4) apply.

¹[http://www.usatoday.com/weather/wtempcf.htm](http://www.usatoday.com/weather/wtempcf.htm)
2. When you write an if-block for idiotproofing, does the exit statement belong before the if-block, inside the if-block or after the if-block? Therefore, should the exit statement be indented less than the if statement, the same as the if statement, or more than the if statement?

3. **DESCRIBE THE CONDITION** of a while loop. (“The condition is a ...”)

4. Are the properties of the condition of a while loop the same as, or different from, the properties of the condition of an if block?

5. **WHAT ARE THE STEPS** that describe the execution of a while loop?
   (a)
   (b)
   (c)

6. **HOW** does a while loop **DIFFER** from an if block?
7. For each of these kinds of statements, mark **CAN** if it can appear in the body of a `while` loop, and mark **CANNOT** if it cannot appear in the body of a `while` loop. **EXPLAIN**.

(a) A named constant declaration

(b) A variable declaration

(c) A `printf` statement

(d) A `scanf` statement

(e) An assignment statement

(f) A `exit` statement

(g) An `if` block

(h) A `while` loop
8. **TRACE** the example program on slides 23 - 25 of the lecture packet titled “while Loop Lesson,” using the input values shown on slides 26 - 27. Your trace should show the following variables: `users_number, users_distance, users_last_distance` and `correct_number_hasnt_input`, but in the trace you can abbreviate their names as `un, ud, uld` and `cnhbi`, respectively.
9. **DRAW A FLOWCHART** for the Infinite Loop program on slide 15 of the lecture slide packet titled “while Loop Lesson.”

If you use **ANY** resources other than Dr. Neeman, the TAs (Borah, Mirza, Narasimhan, Sadri, Zhu), the course textbook or the materials posted on the course webpage, you **MUST** reference them on the quiz. **THIS INCLUDES CLASSMATES, FRIENDS, PROFESSORS, ONLINE RESOURCES, ETC.**