CS-105 Assignment 8

Part I

4.8: Examine following while loops. How many times does each loop execute?

a.
```
ires = 1;
while mod(ires,10) ~= 0
    ires = ires + 1;
end
```
The loop runs 10 times. The final value is ires = 10

b.
```
ires = 2
while ires <= 200
    ires = ires^2
end
```
The loop runs 4 times. The final value is ires = 256

c.
```
ires = 2;
while ires > 200
    ires = ires^2
end
```
The loop runs 1 time. The final value is ires = 2.

Part II

1.
```
%X is a vector of 1s and 0s obtained somehow(it already exists)
n = length(X);
i = 1;
while i <= n
    if X(i) == 1
        disp(i);
    end
    i = i + 1;
end
```

   a. This loop finds the location of each value of 1 in the vector X.
   b. For X = [1 1 0 0 1 0 1 0 0 0 1]: At the end of the loop, i=12

2. I would use a while loop because you don't know how many times the loop will have to run in order to get the result you want.

Part III

In this part, I had to recreate the stopping distance script from assignment 6 using loops. It was difficult to change it from if/elseif/else statements because not everything was easily translated. I made a separate while loop for velocity, friction, and road grade. Then, to satisfy

the fact that (f+G) ~<= 0, I copied and pasted the friction and road grade loops into a another loop to have the user re-enter the friction and road grade so that the distance function works. It was difficult to make sure every condition was satisfied and there were no issues, I ran into many issues throughout the script, mainly making sure that each variable was in the correct place.