

# MA 151: Homework #8

due Tuesday November 28

No written problems!

## Programming problems

- Take the `Term` type from class on 11/8 and put it in the `Eq` class.
- Put the `Term` type in the `Ord` class. You'll need to define `(<=)`. (You'll need to put it in the `Eq` class first, since all `Ord` types are required to first be in `Eq`.)
- Write a function of type `I0 ()` called `mpg` which does an interaction like this: (stuff in italics is user input)  
`Miles driven?` *20*  
`Gallons used?` *4*  
`You drove 5.0 miles per gallon!`

- Write a function of type `I0 ()` called `greeter` which asks for the user's name, then waits for user input. If the user's name is less than 5 letters, it says "That's a short name!" Otherwise it says "That's a long name!"

- Write a function called `shouter` which does an interaction like this: (stuff in italics is user input)

```
Welcome to the shouter!
Type something and I'll shout it.
hello
HELLO!
Type something and I'll shout it.
why are you shouting?
WHY ARE YOU SHOUTING?
Type something and I'll shout it.

Bye!
```

That blank line before "Bye!" is a blank line of user input- this makes the interaction end.

- Modify our `calc` function from class on 11/22 to add a stored "memory" number. At any time, the user can type "store", which will store the current total. At any later time, the user can type "retrieve", and the total will change to the stored total. (*Hint:* give the helper function an extra parameter which carries the memory value from one step to the next.)

- Write a function called `evenOddCount` which does an interaction like this: (stuff in italics is user input)

Gimme a number!

*12*

Gimme a number!

*5*

Gimme a number!

*8*

Gimme a number!

*2*

Gimme a number!

You gave me 3 evens and 1 odds!

That blank line is a blank line of user input- this makes the interaction end.