Implementing static features of classes

Keyword “static”

public static double circleArea(double radius)

* “public” = this is part of the API and is available to class users
* “double” = return type
* “static” = a method or field associated with the CLASS, not with an INSTANCE of the class
  + e.g. Bank accounts
  + each bank account is an instance of the class “BankAccount”
  + static: worth of currency (e.g. a USD account), interest rates, name of the bank, the number of bank accounts that exist
  + non-static: account number, balance, …
* All classes have constructors, methods, and fields
  + Constructors are special methods that are called when an instance of the class is constructed
  + Therefore, an all-static class has no need for a constructor
  + All-static classes are called utility classes

ASIDE about APIs:

* You can write your own API
* Use a special markup language called Javadoc
* Assigned reading: Section 1.5 in the online notes

Casting

* If you want a variable of one type to be of another type, use a cast
* E.g. if you have an integer and you want it to be a double

int x;

// x behaving as a double

(double)x

Default constructor

* The constructor is declared with:
  + The SAME NAME as the class
  + NO return type
* Java automatically provides each new class with a constructor, if one is not specified
* This is the no-argument constructor
* In a utility class we need to suppress the default constructor, so that instances of utility class type can’t be created
* In a utility class, give a default constructor that is private