Basic Assignments (OCA Objectives 2.1, 2.2, and 2.3)

- Literal integers are implicitly `int`s.
- Integer expressions always result in an `int`-sized result, never smaller.
- Floating-point numbers are implicitly doubles (64 bits).
- Narrowing a primitive truncates the *high order* bits.
- Compound assignments (such as `+=`) perform an automatic cast.
- A reference variable holds the bits that are used to refer to an object.
- Reference variables can refer to subclasses of the declared type but not to superclasses.
- When you create a new object, such as `Button b = new Button();`, the JVM does three things:
  - Makes a reference variable named `b`, of type `Button`.
  - Creates a new `Button` object.
  - Assigns the `Button` object to the reference variable `b`.

Using a Variable or Array Element That Is Uninitialized and Unassigned (OCA Objectives 4.1 and 4.2)

- When an array of objects is instantiated, objects within the array are not instantiated automatically, but all the references get the default value of `null`.
- When an array of primitives is instantiated, elements get default values.
- Instance variables are always initialized with a default value.
- Local/automatic/method variables are never given a default value. If you attempt to use one before initializing it, you'll get a compiler error.

Passing Variables into Methods (OCA Objective 6.8)

- Methods can take primitives and/or object references as arguments.
- Method arguments are always copies.
- Method arguments are never actual objects (they can be references to objects).
- A primitive argument is an unattached copy of the original primitive.
- A reference argument is another copy of a reference to the original object.
- Shadowing occurs when two variables with different scopes share the same name. This leads to hard-to-find bugs and hard-to-answer exam questions.

Garbage Collection (OCA Objective 2.4)

- In Java, garbage collection (GC) provides automated memory management.
- The purpose of GC is to delete objects that can't be reached.
- Only the JVM decides when to run the GC; you can only suggest it.
- You can't know the GC algorithm for sure.
- Objects must be considered eligible before they can be garbage collected.
- An object is eligible when no live thread can reach it.
- To reach an object, you must have a live, reachable reference to that object.
- Java applications can run out of memory.
- Islands of objects can be garbage collected, even though they refer to each other.
- Request garbage collection with `System.gc();` (for OCP 5 candidates only).
- The `Class` object has a `finalize()` method.
- The `finalize()` method is guaranteed to run once and only once before the garbage collector deletes an object.
- The garbage collector makes no guarantees; `finalize()` may never run.
- You can ineligible-ize an object for GC from within `finalize()`.