

**1.07 API and Libraries***Define the following terms.*

library Reusable collection of codes	package Namespace that groups related classes and interfaces
API Enables two software components to communicate with each other	class An folder for objects
method A function of codes that can be recalled	Attribute Variable declared in method

What is the purpose of APIs and libraries in programming?

To help people by making code packages methods available without having to write all of its code

**1.08 Documentation with Comments***Define the following terms.*

single-line comment A single line text that can be added as description, comment	multi-line comment A comment but with more than one line
Javadocs Java's built in documentation system	Javadocs comment It tells what class, method is about what parameters are
precondition It is an comment that tells a condition that should happen for code to run without erros	Postcondition A condition that must be true after code runs if code is true

**1.09 Method Signatures***Define the following terms.*

method A function made out of a code segment that can be recalled	method call Expression that calls, activates method
method header First line of method that declares the parameters	method signature Method name and the parameters inside it

parameters Variables defined in method	Arguments The variables that tend to the parameters of method
return type Type of the value/variable that is going to be returned at the end of the method	Overloading Same method name different parameters, compile time error

**1.1 Calling Class Methods**

<pre>public class Equations {     public static void triple(int x) {         System.out.println(3*x);     }      public static int square(int x) {         return x * x;     } }</pre>	Write a statement calling <b>triple</b> from the same class: triple(5);
	Write a statement calling <b>triple</b> from a different class: Equations.triple(5);
	Write a statement calling <b>square</b> from the same class: int s = square(7);
	Write a statement calling <b>square</b> from a different class: int s = Equation.square(7);

**1.11 Using the Math Class**

Write out how you would make the following calculations in Java using Math methods and variables.

Calculate $x^7$ Double v = Math.pow(x,7);	Calculate  y  Var v = Math.abs(y);
Calculate $\pi r^2$ Double area = Math.PI * R * R;	Calculate $a^2 + b^2$ Double v = a*a + b*b;

Write out how you would make the following calculations in Java using the Math.random() method.

Generate a random number between min and max: Double v = min + Math.random()*(max-min);	Generate a random integer between min and max: Int v = min + (int)(Math.random() * (max - min + 1 ));
Flip a coin: boolean coin = (Math.random() < 0.5);	Roll two six-sided dice and add the results: Int sum = (int)(Math.random()*6) + 1 + (int)(Math.random()*6) +1;

AP Computer Science A Name: \_\_\_\_\_ **Unit 1B Review**

### 1.12 Objects

Define the following terms.

class Class is a user defined type describes what a certain objects look like	Object Instances of class created to use attributes and methods of that class
instance Another word for object	attributes (fields, instance variables) Data stored in variable
behaviors (methods) Actions that object can do	New An operator that initiates an object in memory and return a reference to it

### 1.13 Object Creation and Storage (Instantiation)

<pre>public class Dog {     public Dog() {...}      public Dog(String name){...}      public Dog(String name, int age) {...}      public Dog(String name, String breed) {...} }</pre>	Create a Dog object using each of the four constructors. Use whatever values you want.
	Dog a= new Dog()
	Dog b = new Dog("cat")
	Dog c = new Dog("Peanut", 7)
	Dog d = new Dog("Butter", "Golden")

### 1.14 Calling Instance Methods

```
public class Dog
{
```

```
public Dog(String name, int age)
{...}
```

```
public void bark()
{ ... }
```

```
public int getAge()
{ return age; }
```

```
public void setAge(int a)
{ age = a; }
```

```
}
```

Call bark on the Dog object you created.  
d.bark();

Call getAge on the Dog object you created.  
Int age = d.getAge();

Call setAge on the Dog object you created.

Create a Dog object.  
d.setAge(5)

AP Computer Science A Name: \_\_\_\_\_ **Unit 1B Review**

```
public class Apple
{
    private static int count = 0;

    public Apple()
    {...}

    public void disappear()
    { ... }

    public static void getCount()
    { return count; }
}
```

Create an Apple object  
Apple a = new Apple()

Call the disappear method  
a.dissapear();

Call the getCount method  
Int c = Apple.getCount();  
Or  
Apple.getCount();

## 1.15 Strings

String Methods - Assume we have declared `String str1 = "hello";` and `String str2 = "there!";`

hello

str1.length()

there!

str2.length()

str1.substring(0, 2)

str1.substring(3)

str2.substring(2, 4)

str2.substring(1)

<pre>str1.indexOf("e")  str2.indexOf("o")</pre>	<p>Access the letter at index i in <code>str</code>:</p> <pre>char c = str.charAt(i);</pre>
---	---

How would you remove `String rem` from `String phrase` and replace it with `String rep`?  
(Assume `phrase`, `rem`, and `rep` are all correctly declared and initialized.)

```
phrase = phrase.replace(rem, rep);
```