

Java Reference Card

1. Classes and Methods

The following is an example of a class (Calculator) with a single method “main”:

```
public class Calculator {  
    public static void main(String[] args) {  
    }  
}
```

The following is an example of a method declaration with an empty body within a class named Geometry:

```
public class Geometry {  
    public static double circleArea(double radius) {  
    }  
}
```

The following is an example of an invocation of this method (assuming that it is in the Geometry class):

```
double radius = 5.0;  
area = Geometry.circleArea(radius);
```

3. Operators

Arithmetic	Operators
Addition	+
Decrement	--
Division	/
Increment	++
Int. Division	/
Multiplication	*
Modulus	%
Negation	-
Subtraction	-

4. Type Conversion

Example Expression	Type	Value
(1 + 2 + 3 + 4)/4.0	double	2.5
“1234” + 99	String	“123499”
11 * 0.25	double	2.75
(int)2.71828	int	2
(int)11 * 0.25	double	2.75
11 * (int)0.25	int	0
(int)(11 * 0.25)	int	2

5. Math Library Methods/Constants

Signature	Purpose	Return type
static double Math.abs(double v)	Absolute value	Double
static double Math.cos(double a)	Cosine	Double
Math.pow(double v, double p)	v raised to the p power	double
Math.PI	The constant for π	NA

6. Input

Input Using a Scanner Object

```
import java.util.Scanner;

double d;
int i;
Scanner in;
String s;
in = new Scanner(System.in);
d = in.nextDouble();
i = in.nextInt();
s = in.nextLine();
```

7. Output

The `System.out` object has the following methods:

<code>print()</code>	Can be passed a double, int, or String
<code>println()</code>	Can be passed a double, int, or String and includes a newline at the end
<code>printf()</code>	Is passed a format string and one value for each format specifier

Example Specifier	Description
<code>%d</code>	Integer
<code>%5d</code>	Integer in a field of width 5
<code>%f</code>	Floating-point
<code>%f5.2</code>	Floating-point in a field of width 5 with 2 places to the right of the .
<code>%s</code>	String

Complete Example	0123456789102345678901234567890
<code>printf("%2d%5.2f", 5, 8.1)</code>	5 8.10
<code>printf("%10d%8.4f", 5, 8.1)</code>	5 8.1000

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