CSE 143X Section Handout #3
Cheat Sheet

`Math` class (3.2)

A set of useful methods for performing mathematical operations

Method	Description	Method	Description
`Math.abs(`*value*`)`	absolute value	`Math.max(`*value1*`, `*value2*`)`	larger of two values
`Math.ceil(`*value*`)`	rounds up	`Math.min(`*value1*`, `*value2*`)`	smaller of two values
`Math.cos(`*value*`)`	cosine, in radians	`Math.pow(`*base*`, `*exponent*`)`	*base* to the *exponent* power
`Math.floor(`*value*`)`	rounds down	`Math.round(`*value*`)`	nearest whole number
`Math.log(`*value*`)`	logarithm, base *e*	`Math.sin(`*value*`)`	sine, in radians
`Math.log10(`*value*`)`	logarithm, base 10	`Math.sqrt(`*value*`)`	square root

```
double bigger = Math.max(Math.pow(2, 3), Math.sqrt(49));
System.out.println("The bigger value is " + bigger);
```

Constant	Description
`Math.E`	2.7182818...
`Math.PI`	3.1415926...

Return (3.2)

(A way to pass information out from a method to its caller)

```
public static type name(parameters) {
    statement(s);
    ...
    return expression;
}

public static double fToC(double degreesF) {    // Converts Fahrenheit to Celsius.
    double degreesC = 5.0 / 9.0 * (degreesF - 32);
    return degreesC;
}
```

`Scanner` (3.3)

(An object to read values from the keyboard)

```
import java.util.*;
Scanner console = new Scanner(System.in);
System.out.print("How old are you? ");
int age = console.nextInt();
System.out.println("You'll be 40 in " +
        (40 - age) + " years.");
```

Method	Description
`nextInt()`	reads/returns input as `int`
`nextDouble()`	reads/returns input as `double`
`next()`	reads/returns input as `String`
`nextLine()`	reads/returns a line `String`

`if/else` (4.1)

```
if (test) {
    statement(s);
} else {
    statement(s);
}
```

Nested `if/else` (4.1)

```
if (test) {
    statement(s);
} else if (test) {
    statement(s);
} else {
    statement(s);
}
```

Operator	Description
`<`	less than
`<=`	less than or equal
`>`	greater than
`>=`	greater or equal
`==`	equal
`!=`	not equal
`&&`	and
`||`	or
`!`	not

Cumulative Sum (4.2)

```
// add up all numbers from 1-max
int sum = 0;
for (int i = 1; i <= max; i++) {
    sum = sum + i;
}
```

CSE 143X Section Handout #3

Cheat Sheet (continued)

`String` (3.3, 4.4) - *store text*

```
String name = "P. Diddy";
System.out.println(name.length());    // 8
```

index	0	1	2	3	4	5	6	7
char	P	.		D	i	d	d	y

Method	Description
`contains(`**str**`)`	true if this String contains the other's characters inside it
`endsWith(`**str**`)`, `startsWith(`**str**`)`	true if this String starts/ends with the other's characters
`equals(`**str**`)`	true if this String is the same as *str*
`equalsIgnoreCase(`**str**`)`	true if this String is the same as *str*, ignoring capitalization
`indexOf(`**str**`)`	index in this String where given String begins (-1 if not found)
`length()`	number of characters in this String
`substring(`**i**`, `**j**`)`	characters in this String from index *i* (inclusive) to *j* (exclusive)
`toLowerCase()`, `toUpperCase()`	a new String with all lowercase or uppercase letters