C# Programming Reference Sheet

Built In Data Types & Literals

Integers

```
byte sbyte int uint long ulong short ushort
```

Floating Point Numbers

```
decimal double float
```

Strings and Characters

```
char string
```

Boolean

```
bool
```

Working with Strings

Assignment (giving a string a value)

```
string strA = "Hello, "
```

Concatenation (joining strings)

```
string strB = strA + "World!"
```

Comparison

```
strA == strB, or string.Compare(strA, strB)
```

Construction from other types:

```
otherType.ToString()
```

Simple Programming Statements

Constant declaration

```
public const double PI = 3.141;
```

Variable declaration

```
public int radius;
```

Assignment

```
Radius = PI / 5;
```

Method call

```
console.WriteLine("Hello!");
```

Sequence of statements - grouped

```
{ }
```

Structured Programming Statements

If statement

```
If (a == b) {}
```

Case statement

```
switch (caseSwitch) { case 1: break}
```

While loop

```
while (n < 5) {}
```

Repeat loop

```
do { } while (n < 5)
```

For loop

```
for(int i = 0; i  5; i++)
```

Declaring Methods

Declare a method with parameters:

```
public void SayHello(string name)
```

Declare a method that returns data:

```
public int Multiply(int a, int b)
```

Pass by reference:

```
public void Square(ref int a); void Square(out int a). ref is two-way, out is out-only.
```

Boolean Operators and Other Statements

Comparison: equal, less, larger, not equal, less eq

```
== < > >= <=
```

Boolean: And, Or and Not

```
&& || !=
```

Skip an iteration of a loop

```
continue;
```

End a loop early

```
break;
```

End a method:

```
return;
```

Custom Types

Classes

```
public class Message(string message)
```

Enumerations

```
enum Day {sat, sun, mon, tues}
```

Structs

```
public struct Point2d {
int _x, _y
public Point2d(int x, int y) {…
```

Arrays

Declaration

```
String[] Message = new String[5]
```

Access

```
Message[0]
```

Loop with index i

```
for(int i = 0; i < 5; i++) {
        …message[i]…
```

For each loop

```
foreach(string str in message) {…
```

Programs and Modules

Creating a program

```
namespace program
class mainclass {}
```

Using a class from a library

```
#include SwinGameAPI;
```

Other Things

Reading from Terminal

```
Console.ReadLine();
```

Writing to Terminal

```
Console.WriteLine("Hello, World!")
```

Comments

```
// /**/
```