C++ Exam 1 Cheat Sheet

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Definitions

Algorithm	A guide of steps to solution.
Flowcharts	Graphical representation of algorithm
Pseudocode	Language used to represent algorithm.
Preprocessing Directives	Commands that are preceded by the # sign
Memory	Used to store information for immediate use
Bit	Stores 0 or 1
Byte	Group of eight bits

Comments

Line comment	// text
Block comment	/ * text * /

Output & Input Statements

cout (Print)	cout<<"text";
cin (Request input)	cin>>variable

Constants

Used to represent values used throughout the program.

Constants should be named in uppercase letters.

Escape Sequences

\n	Newline	Cursor moves to next line
\t	Tab	Cursor moves to next tab stop
\b	Backspace	Cursor moves one space to left
\r	Return	Cursor returns to beginning of current line

Escape Sequences (cont)

\\	Backslash	Backslash is printed
\'	single quotation	single quotation is printed
\"	Double quotation	Double quotation is pritned

Literals

integer	4
floating point	3.1415926
string	"string"
Boolean	false
character	'A'

Data types

int	integer literals
float	floating point literals
double	floating point literals
string	string literal
char	character literal
bollean	boolean literal

Hierarchy of Types

long double (Highest)

double

float

unsigned long

long

unsigned int

int

char (Lowest)

Type Conversion

Implicit Type Coercion	Automatic change in type of value
Type Coercion	Automatic change of an operand to another type
Promotion	Convert to higher type
Demotion	Convert to lower type

Casting

Also called type casting. Used for manual data type conversion.

Format:
static_cast<type>(expression)

PEMDAS (Order of Operations)

Parentheses	[], ()
Multiplication & Division	*, /, %
Addition and Subtraction	+, -

Switch Statements

```
switch ( variable )
{
case value1:
// do something
break;
case value2:
// do something else
break;
default:
// do something by default
break;
}
```


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Converting between Switch & if

```
switch ( variable )
{
case value1:
// do something
break;
case value2:
// do something else
break;
default:
// do something by default
break;
}
```

This is equivalent to:

```
if ( variable == value1 )
{
// do something
}
else if ( variable = value2 )
{
// do something else
}
else
{
// do something by default
}
```

Arithmetic Operators

+	Addition	x+y
-	Subtraction	x-y
*	Multiplication	x*y
/	Division	x/y
%	Modulus (integer arithmetic)	x % y

Relational Operators

<	Less than	x < y
>	Greater than	x > y
<=	Less than or equal to	x <= y
>=	Greater than or equal to	x >=y
!=	Not equal to	x != y

Logical Operators

&&	AND	NEw relational expression is true if both expressions are true
!!	OR	New relation expression is true if either is true
!	NOT	Reverses the value of an expression. True to false and false to true

Order from highest to lowest: !, &&, ||

Precedence for ALL Operators

Arithmetic Operators (Highest)

Relational Operators

Logical Operators (Lowest)

Increment and Decrement

prefix	++x,--y
postifx	x++,y--

For prefix, the value changes and then get evaluated, and vice versa for the postfix.

Control Flow - If Statements

```
if ( conditional )
{
// do something
}
else if ( another_conditional )
{
// do something else
}
else
{
// do something as default
}
```

Control Flow - While Loops

```
while ( conditional )
{
// do something
}
```

For Loops

```
for ( initialization; test; command )
{
// do something
}
```

Converting Between For & While

```
for ( initialization; test; command )
{
// do something
}
```

this is equivalent to:

```
initialization;
while( test )
{
// do something
command;
}
```


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