

# Variables and Constants

Math and Computer Science



# Variables

- Syntax: <datatype> <identifier>;
- Examples:

`float balance;`

`double deficit;`

`int depositNumber;`

`char yesNo;`

# Variables with Assignment

Initialize a variable when it is created

```
float balance = 34.65;
```

```
double deficit = -1243523.00;
```

```
int depositNumber = 16;
```

```
char yesNo = 'y';           // char yesNo = 121;
```

# Special Characters

- \t
- \n
- \0
- \"
- \'
- \a
- \b
- \\

# Use of Special Characters

- Put a single quote in a char variable:

```
char punc = '\'';
```

- Put a double quote around a word in a string:

```
char line[80] = "The word is \"Fred\"";
```

- Indent a line with a tab character:

```
char paragraph[1000] = "\tThis is a multi line  
\nsentence using special characters.";
```

# Constants

- Make an identifier always contain the same value.
- Must be initialized when declared
- Use the keyword const in front of the type

Examples:

```
const double PI = 3.141592653589793;
```

```
const int SIZE = 100;
```

```
const char ERRMSG[80] = "Enter a valid file name";
```

# Literal Constants

- 31
- 95.2
- 't'
- "Help Me"

# Defines

```
#define PI 3.141592653589793
```

- Is a preprocessor command, So before the code is compiled the value 3.141592653589793 is copied in where ever the variable PI is used.

```
area = radius * radius * PI;
```

becomes

```
area = radius * radius * 3.141592653589793;
```