

```

length.c  /* Determines the length of a message */

#include <stdio.h>

int main(void)
{
    char ch;
    int len = 0;

    printf("Enter a message: ");
    ch = getchar();
    while (ch != '\n') {
        len++;
        ch = getchar();
    }
    printf("Your message was %d character(s) long.\n", len);

    return 0;
}

```

Recalling our discussion of idioms involving while loops and `getchar`, we realize that the program can be shortened:

```

length2.c /* Determines the length of a message */

#include <stdio.h>

int main(void)
{
    int len = 0;

    printf("Enter a message: ");
    while (getchar() != '\n')
        len++;
    printf("Your message was %d character(s) long.\n", len);

    return 0;
}

```

## 7.4 Type Conversion

Computers tend to be more restrictive than C when it comes to arithmetic. For a computer to perform an arithmetic operation, the operands must usually be of the same size (the same number of bits) and be stored in the same way. A computer may be able to add two 16-bit integers directly, but not a 16-bit integer and a 32-bit integer or a 32-bit integer and a 32-bit floating-point number.

C, on the other hand, allows the basic types to be mixed in expressions. We can combine integers, floating-point numbers, and even characters in a single expression. The C compiler may then have to generate instructions that convert