

16.216: ECE Application Programming

Fall 2014

Lecture 4: Key Questions September 10, 2014

1. What are the basic binary arithmetic operators supported by C?
2. Explain the modulus operator (%).
3. What determines the type of a binary operation's result?
4. What is the difference between division of integers and floating-point types?

5. Explain the operation of the unary negation operator (e.g., $-x$).
6. **Example:** Evaluate each of the following expressions, including the type (`int` or `double`) in your answer.
- a. $19/3$
 - b. $3/19$
 - c. $19\%3$
 - d. $3\%19$
 - e. $5 + 7/2$
 - f. $5.0 + 7/2$
 - g. $5 + 7.0/2$
 - h. $5 * 3 \% 3 / 6 + 14 + 10 / 2$
 - i. $5 * (3 \% 3) / 6 + 14.0 + 10/3$

7. Describe the use of `printf ()` to print numeric values and characters.

8. **Example:** Show the output of each of the following short programs:

a.

```
#include <stdio.h>
void main()
{
    int i=2, j=3, k, m;
    k = j * i;
    m = i + j;
    printf("%d %d %d %d\n", i, j, k, m);
}
```

b.

```
#include <stdio.h>
void main() {
    double f, g;
    f = 1.0 / 4.0;
    g = f * 20;
    printf("f = %lf,\ng = %lf\n", f, g);
}
```

c.

```
#include <stdio.h>
void main() {
    int a = 5, b = 2;
    printf("Output%doesn't%make%sense", a, b, a + b);
}
```

9. Describe the use of `scanf ()` for reading input values into variables.

10. How does `scanf ()` handle whitespace and other characters in format string?