Solutions to Chapter 3

Review Questions

1. b. False

3. b. False

5. b. False

7. b. +a

9. d. precedence

11. c. An explicit cast on a variable changes its type in memory.

Exercises

13. b, d, and e

15. b and c

17.

    a. 2

    b. 8

    c. 11

    d. 8

    e. 0

19.

    a. 12

    b. –27

    c. 14

    d. 2

    e. 4

21.

    a. valid assignment

    b. valid assignment

    c. valid assignment

    d. invalid assignment

    e. valid assignment

    f. valid assignment

    g. invalid assignment

23.

    a. 5

    b. 2

    c. 4

    d. –3

    e. 6

25. 50   50 100   25

Problems

27. See Program 3-1.

Program 3-1 Solution to Problem 27

```c
/* Calculate and print the product of two numbers.
      Written by:
      Date:
*/
#include <stdio.h>

int main (void)
{
// Local Declarations
   int a;
   int b;
   int product;

// Statements
   printf("Enter 2 integers separated by a space: ");
   scanf ("%d %d", &a, &b);

   product = a * b;

   printf("\nThe first number entered was %d\n", a);
   printf("The second number entered was %d\n", b);
   printf("The product of the two numbers is %d\n",
           product);
   return 0;
}  // main
```

29. See Program 3-2.

Program 3-2 Solution to Problem 29

```c
/* Extract and print the second rightmost digit
   of the integral portion of a float
      Written by:
      Date:
*/
#include <stdio.h>

int main (void)
{
// Local Declarations
   int   digit;
   float number;

// Statements
   printf("Enter a floating point number: ");
   scanf ("%f", &number);

   digit = ( (int)number / 10 ) % 10;
   printf("\nSecond rightmost digit is %d\n", digit);

   return 0;
}  // main
```

31. See Program 3-3.

Program 3-3 Solution to Problem 31

```c
/* This program converts degrees into radians.
      Written by:
```

Program 3-3 Solution to Problem 31 (continued)

```
        Date:
*/
#include <stdio.h>

int main (void)
{
// Local Declarations
    int degree;

// Statements
    printf("Enter an angle in degrees: ");
    scanf ("%d", &degree);

    printf("\n%d degrees is %f radians\n",
            degree, degree / 57.295779);
    return 0;
}   // main
```

33. See Program 3-4.

Program 3-4   Solution to Problem 33

```
/* This program converts fahrenheit temperatures into
   celsius.
      Written by:
      Date:
*/
#include <stdio.h>

int main (void)
{
// Local Declarations
    float fahren;
    float celsius;

// Statements
    printf("Enter the temperature in Fahrenheit: ");
    scanf ("%f", &fahren);

    celsius = (100.0f / 180.0f) * (fahren - 32);
    printf("Fahrenheit temperature is: %4.1f\n", fahren);
    printf("Celsius temperature is:    %4.1f\n", celsius);
    return 0;
}   // main
```

35.

a.
```
int num = 25;
num += 5;
printf ("%d, ", num);
num += 5;
printf ("%d ", num);
```
b.
```
int num = 10;
num += 2;
printf ("%d, ", num);
num += 2;
printf ("%d ", num);
```

c. `int num = 32;`
   `num *= 2;`
   `printf ("%d, ", num);`
   `num *= 2;`
   `printf ("%d ", num);`