# Solutions to Chapter 2

## Review Questions

**1.** b. False

**3.** b. False

**5.** b. Comments are used by the preprocessor to help format the program.

**7.** d. logical

**9.** c. Like variables, constants have a type and may be named.

**11.** a. flag

**13.** b. The ampersand

## Exercises

**15.** c and e

**17.**

   **a.** integer

   **b.** floating-point real

   **c.** character

   **d.** string

   **e.** string

**19.**

   **a.** string

   **b.** integer

   **c.** string

   **d.** character

   **e.** floating point real

**21.**

   **a.** Valid

   **b.** Valid

   **c.** Not valid – starts with digit

   **d.** Not valid – starts with digit

   **e.** Not valid – '#' is not a valid character to use in an identifier.

**23.**

```
---------------

First
Example
:   10
, w is Y

z is     5.12
---------------
```

**25.** The following lines must be changed to read as follows:

   Line 1:

   `#include <stdio.h>`

   Line 4:

```
      printf ("Hello World");
      Last line:
      }
```

**27.** The following lines must be changed to read as follows:

```
    Before main:
    #include <stdio.h>
    Line 7:
    int    a;
    Line 8:
    float b;
    Line 9:
    char   c;
```

**29.** The following lines must be changed to read as follows:

```
    Line 7: (Note: We Recommned Only One Definition Per Line).
    int    a;
    Line 8:
    char    b;
    char    c;
    char    d;
    Line 9: d cannot be declared twice
    double e;
    double f;
```

# Problems

**31.**

> **a.** short code;
>
> **b.** #define salesTax .0825
>
>    – or –
>
>    const double salesTax .0825;
>
> **c.** double sum = 0.0;

**33.** See Program 2-1.

**Program 2-1 Solution to problem 33**

```c
/* This program uses four print statements.
      Written by:
      Date:
*/
#include <stdio.h>

int main (void)
{
// Statements
   printf ("******\n");
   printf ("******\n");
   printf ("******\n");
   printf ("******\n");
   return 0;
}   // main
```

**35.** See Program 2-2.

**Program 2-2 Solution to problem 35**

```c
/* This program uses three types of  constants.
      Written by:
```

**Program 2-2 Solution to problem 35**

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

#define A 'a'
#define E 'e'
#define I 'i'
#define O 'o'
#define U 'u'

int main (void)
{
// Local definitions
   const int even0 = 0;
   const int even2 = 2;
   const int even4 = 4;
   const int even6 = 6;
   const int even8 = 8;

// Statements
   printf ("%3c%3c%3c%3c%3c\n", A, E, I, O, U);
   printf ("%3d%3d%3d%3d%3d\n",
           even0, even2, even4, even6, even8);
   printf ("%3d%3d%3d%3d%3d\n", 1, 3, 5, 7, 9);
   return 0;
}  // end of main
```

**37.** See Program 2-3

**Program 2-3 Solution to problem 37**

```
/* This program demonstrates the use of scanf and printf
      Written by:
      Date:
*/
#include <stdio.h>

int main (void)
{
// Local Definitions
   int   quantity;
   float unitPrice;

// Statements
   printf("\nEnter quantity & price (XXX XXX.XX): ");
   scanf ("%d %f", &quantity, &unitPrice);

   printf("\nQuantity    : %6d\n", quantity);
   printf("Unit Price : %6.2f\n", unitPrice);
   return 0;
}  // end of main
```