

**Section 2.1 Answers to Odd Numbered Questions**

- 1)
- a) true
  - b) false
  - c) true
  - d) true
  - e) false
  - f) false
  - g) true
  - h) false
  - i) true
  - j) true
  - k) true
  - l) false
  - m) true
  - n) true
  - o) false
  - p) true

- 3)
- a) true
  - b) true
  - c) true

- 5)
- a) false
  - b) true
  - c) true

**Section 2.2 Answers to Odd Numbered Questions**

- 1)
- a) The Beginning!  
The End!
  - b) a is less than 5  
d is 14
  - c) z is -17
  - d) 8
  - e) a is less than b
  - f) 45
  - g) The power
- 3) `if (num < 0)  
 num = -1 * num;`

```
5)  if (temp > 85)
      cout << "hot";
      else
          cout << "not hot";
```

```
7)  if (temp > 85)
      cout << "hot";
      else if (temp >= 45)
          cout << "OK";
      else
          cout << "cold";
```

```
9)  switch(color)
      {
      case 'r':
          cout << "red";
          break;
      case 'g':
          cout << "green";
          break;
      case 'y':
          cout << "yellow";
          break;
      case 'b':
          cout << "blue";
          break;
      default:
          cout << "white";
      }
```

```
11) #include <iostream>
      #include <string>
      using namespace std;

      int main()
      {
          const string PASSWORD = "example";
          string usersGuess;

          cout << "Enter the password: ";
          cin >> usersGuess;
          if (usersGuess == PASSWORD)
              cout << "Enter!" << endl;

          return 0;
      }
```

```
13) #include <iostream>
      #include <string>
      using namespace std;

      int main()
      {
          const string PASSWORD = "example";
          string usersGuess;
```

```
    cout << "Enter the password: ";
    cin >> usersGuess;
    if (usersGuess == PASSWORD)
        cout << "Enter!" << endl;
    else
        cout << "You may not enter!" << endl;

    return 0;
}
```

```
15) #include <iostream>
#include <string>
using namespace std;

int main()
{
    cout.setf(ios::fixed, ios::floatfield);
    cout.setf(ios::showpoint);
    cout.precision(2);

    double gross, hours, rate;

    cout << "Enter hours worked: ";
    cin >> hours;
    cout << "Enter rate of pay: ";
    cin >> rate;

    if (hours > 40.0)
        gross = hours * rate + (hours - 40.0) * rate * .5;
    else
        gross = hours * rate;

    cout << "Gross Pay: $" << gross << endl;

    return 0;
}
```

```
17) #include <iostream>
#include <fstream>
using namespace std;

int main()
{
    cout.setf(ios::fixed, ios::floatfield);
    cout.setf(ios::showpoint);

    double n;

    cout << "Enter a number: ";
    cin >> n;

    if (n < 0)
        cout << 2 * n * n << endl;
    else if (n == 0)
        cout << 1 << endl;
    else
        cout << -2 * n * n << endl;

    return 0;
}
```

```
19) #include <iostream>
using namespace std;

int main()
{
    int year;

    cout << "Enter the year: ";
    cin >> year;

    if (year <= 1582)
        cout << year << " is not a leap year" << endl;
    else if (year % 4 != 0)
        cout << year << " is not a leap year" << endl;
    else if (year % 400 == 0)
        cout << year << " is a leap year" << endl;
    else if (year % 100 == 0)
        cout << year << " is not a leap year" << endl;
    else
        cout << year << " is a leap year" << endl;

    return 0;
}
```

```
21) #include <iostream>
using namespace std;

int main()
{
    cout.setf(ios::fixed, ios::floatfield);
    cout.setf(ios::showpoint);
    cout.precision(2);

    double sales, commission=0;

    cout << "Enter sales amount: ";
    cin >> sales;

    if (sales >= 0.0 && sales <= 10000.0)
        commission = sales * .025;
    else if (sales < 20000.0)
        commission = sales * .035;
    else
    {
        commission = sales * .047;
        if (sales > 40000.0)
            commission = commission + 200.0;
        if (sales > 50000.0)
            commission = commission + 300.0;
    }

    cout << "Commision: $" << commission << endl;

    return 0;
}
```

## Section 2.3 - while and do-while: Answers to Odd Numbered Questions

1)

- a) 2
- b) 7.5
- c) 21

3)

- a) 9 8 7 6 5 4 3 2 1 0
- b) 5 9 13 17
- c) 4 8 16 16
- d) 15
- e) 11  
12  
21  
22  
31  
32  
41  
42
- f) 48  
47  
38  
37

5)

- a) 19
- b) 21
- c) '1' or '2' or '3'

7) #include <iostream>  
using namespace std;

```
int main()
{
    int odd = -99;
    while (odd < 100)
    {
        cout << odd << ' ';
        odd = odd + 2; // or odd += 2;
    }
    return 0;
}
```

```

9) #include <iostream>
   using namespace std;

   void main()
   {
       int height, sum = 0, count = 5;

       while (count > 0)
       {
           cout << "Enter a height: ";
           cin >> height;
           sum = sum + height;
           count--;
       }

       cout << "The average height is " << sum / 5 << endl;
   }

```

```

11) #include <iostream>
    using namespace std;

    void main()
    {
        int height, sum = 0, count = 0;;

        cout << "Enter a height: ";
        cin >> height;
        while (height >= 0)
        {
            sum = sum + height;
            count++;
            cout << "Enter a height: ";
            cin >> height;
        }

        cout << "The average height is " << sum / count << endl;
    }

```

### Section 2.3 - for: Answers to Odd Numbered Questions

1) 0 1 4 9 16 25 36 49 64 81

3) 1 1 2  
 2 1 2  
 3 1 2  
 4 1 2

5) 000  
 001  
 010  
 011  
 100  
 101  
 110  
 111

```
7) m is 10
   sum is 30
```

```
9) ABCDEFGHIJKLMNOPQRSTUVWXYZ
```

```
11) 0123456789
```

```
13) #include <iostream>
    using namespace std;

    int main()
    {
        for (int x=-100; x<101; x++)
            cout << x << '\t';
        cout << endl;

        return 0;
    }
```

```
15) #include <iostream>
    using namespace std;

    int main()
    {
        for (int x=3; x<10; x++)
            for (int y=2; y<5; y++)
                cout << x * x - y * y << endl;
        cout << endl;

        return 0;
    }
```

```
17) #include <iostream>
    using namespace std;

    int main()
    {
        int n, sum=0;

        cout << "Enter an integer: ";
        cin >> n;
        for (int integer=1; integer<=n; integer++)
            sum += integer;
        cout << sum << endl;

        return 0;
    }
```

```
19) #include <iostream>
using namespace std;

int main()
{
    int m, n, sum=0;

    cout << "Enter an integer: ";
    cin >> m;
    cout << "Enter a second integer: ";
    cin >> n;
    for (int integer=m; integer<=n; integer++)
        sum += integer;
    cout << sum << endl;

    return 0;
}

21) #include <iostream>
using namespace std;

int main()
{
    cout.setf(ios::fixed, ios::floatfield);
    cout.setf(ios::showpoint);
    cout.precision(2);

    double height, count=0, total=0;

    cout << "Enter a height in inches: ";
    cin >> height;
    for (; height >=0; count++)
    {
        total += height;
        cout << "Enter a height in inches: ";
        cin >> height;
    }
    cout << "The average height is " << total / count << " inches" << endl;

    return 0;
}
```

```
23) #include <iostream>
using namespace std;

int main()
{
    char c;

    for (int a=0; a<256; a++)
    {
        if ((a+1)%7 == 0)
            cout << endl;
        c=a;
        cout << a << ':' << c << '\t';
    }
    cout << endl;

    return 0;
}

25) #include <iostream>
#include <ctime>
#include <stdlib.h>
using namespace std;

const int MAX_TOSS = 1000;

int main()
{
    int pair,
        two, three, four, five, six, seven,
        eight, nine, ten, eleven, twelve;

    srand((unsigned)time(NULL));
    two=three=four=five=six=seven=eight=nine=ten=eleven=twelve=0;

    for (int toss=0; toss<MAX_TOSS; toss++)
    {
        pair = rand()%6+1 + rand()%6+1;
        switch(pair)
        {
            case 2:
                two++;
                break;
            case 3:
                three++;
                break;
            case 4:
                four++;
                break;
            case 5:
                five++;
                break;
            case 6:
                six++;
                break;
            case 7:
                seven++;
                break;
            case 8:
                eight++;
        }
    }
}
```

```

        break;
    case 9:
        nine++;
        break;
    case 10:
        ten++;
        break;
    case 11:
        eleven++;
        break;
    case 12:
        twelve++;
    }
}

cout << " 2s: " << two    << endl
    << " 3s: " << three  << endl
    << " 4s: " << four   << endl
    << " 5s: " << five   << endl
    << " 6s: " << six    << endl
    << " 7s: " << seven  << endl
    << " 8s: " << eight  << endl
    << " 9s: " << nine   << endl
    << "10s: " << ten    << endl
    << "11s: " << eleven << endl
    << "12s: " << twelve << endl;

    return 0;
}

```

```

27) #include <iostream>
    using namespace std;

    int main()
    {
        cout.setf(ios::fixed, ios::floatfield);
        cout.setf(ios::showpoint);

        long double n, pi, sum=0.0L, a=2.0L;

        cout << "Enter the loop limit: ";
        cin >> n;
        for (int x=0; x<n; x++)
        {
            if (x%2 == 0)
                sum += 1.0L / (a * (a+1.0L) * (a+2.0L));
            else
                sum -= 1.0L / (a * (a+1.0L) * (a+2.0L));
            a+=2.0L;
        }
        pi = 4.0L * sum + 3.0L;
        cout.precision(0);
        cout << "PI from " << n << " loops is " << endl;
        cout.precision(55);
        cout << pi << endl;

        return 0;
    }

```