Switch Statement- Worksheet

1. Given the following switch statement:

```
cout << "enter the grade:  ";
cin >> grade;
switch (grade)
{
    case 'A':
    case 'B':
         cout << "good work" << endl;
         break;
    case 'C':
         cout << "average work" << endl;
         break;
    case 'D':
         cout << "just passing" << endl;
         break;
    case 'F':
         cout << "poor work" << endl;
         failing++;
         break;
}
```

What would be printed if the grade were:

A. A

   good work

B. D

   just passing

C. b

   [nothing is printed]

2. Modify the switch statement in question 1 so that it prints an error message if an invalid grade is entered.

```
switch (grade) {
    case 'A':
    case 'B':
        cout << "good work" << endl;
        break;
    case 'C':
        cout << "average work" << endl;
        break;
    case 'D':
        cout << "just passing" << endl;
        break;
    case 'F':
        cout << "poor work" << endl;
        failing++;
        break;
    default:
        cout << "invalid grade letter" << endl;
        break;
}
```

3. Modify the switch statement in question 1 so that it works for grades entered as uppercase or lowercase letters.

```
switch (toupper(grade)) {
    case 'A':
    case 'B':
        cout << "good work" << endl;
        break;
    case 'C':
        cout << "average work" << endl;
        break;
    case 'D':
        cout << "just passing" << endl;
        break;
    case 'F':
        cout << "poor work" << endl;
        failing++;
        break;
    default:
        cout << "invalid grade letter" << endl;
        break;
}
```

4. A. Write the equivalent if/else statements for the program segment in Question # 1.

```
if (grade == 'A' || grade == 'B') {
    cout << "good work" << endl;
} else if (grade == 'C') {
    cout << "average work" << endl;
} else if (grade == 'D') {
    cout << "just passing" << endl;
} else if (grade == 'F') {
    cout << "poor work" << endl;
    failing++;
} else {
    cout << "invalid grade" << endl;
}
```

B. If you were guaranteed that only VALID grades would be entered by the user, could the if/else statement be written any differently? If so, how?

The last else statement could be removed.

5. Show the output of the following:

```
int1 = 4;
switch (int1)
{
    case 1:
        cout << 4;
        break;
    case 2:
        cout << 1;
        break;
    case 3:
        cout << 7;
        break;
    case 4:
        cout << 9;
        break;
    case 5:
        cout << 6;
        break;
}
```

9

6. Show the output of the following:

```
int1 = 4;
switch (int1)
{
   case 1:
       cout << 4;
       break;
   case 2:
       cout << 1;
       break;
   case 3:
       cout << 7;
       break;
   case 2:
       cout << 9;
       break;
   case 5:
       cout << 6;
       break;
}
```

There will be no output since the switch statement has a duplicate case and therefore will not compile.

7. Show the output of the following:

```
int1 = 4;
switch (int1)
{
   case 1:
       cout << 4;
       break;
   case 2:
       cout << 1;
       break;
   case 3:
       cout << 7;
       break;
   case 4:
       cout << 9;
   case 5:
       cout << 6;
}
```

96

8. An electronics store is having a sale. Items from the audio department (dept code 310) are 10% off. Items from the video department (dept code 438) are 12% off. Items from the computer department (dept code 284) are 8% off, and items from the communications department (dept code 652) are 15% off. Items from other departments are 5% off. Write the statements to read in the regular price of an item and the dept code, and calculate the sale price. Print the regular price and the sale price. Use a nested if statement.

```
double price, discounted;
int department_code;

cout << "Enter price: ";
cin >> price;
cout << "Enter dep. code: ";
cin >> department_code;

if (department_code == 310) {
    discounted = price * (1 - 0.1);
} else if (department_code == 438) {
    discounted = price * (1 - 0.12);
} else if (department_code == 284) {
    discounted = price * (1 - 0.08);
} else if (department_code == 652) {
    discounted = price * (1 - 0.15);
} else {
    discounted = price * (1 - 0.05);
}

cout << "Regular : " << price << endl;
cout << "Discount: " << discounted << endl;
```

9. Rewrite your code from problem 8 using a switch statement.

```
double price, discounted;
int department_code;

cout << "Enter price: ";
cin >> price;
cout << "Enter dep. code: ";
cin >> department_code;

switch (department_code) {
    case 310:
        discounted = price * (1 - 0.1);
        break;
    case 438:
        discounted = price * (1 - 0.12);
        break;
    case 284:
        discounted = price * (1 - 0.08);
        break;
    case 652:
        discounted = price * (1 - 0.15);
        break;
    default:
        discounted = price * (1 - 0.05);
        break;
}

cout << "Regular : " << price << endl;
cout << "Discount: " << discounted << endl;
```