

1.

```
1  #include <stdio.h>
2  int main(void)
3  {
4      int i;
5      i = 1;
6      while (i <= 128)
7      {
8          printf("%d ", i);
9          i *= 2;
10     }
11     return 0;
12 }
```

> The output is 1, 2, 4, 8, 16, 32, 64, 128.

2.

```
1  #include <stdio.h>
2  int main(void)
3  {
4      int i;
5      //A. while loop
6      i = 10;
7      while (i < 10)
8      {
9          printf("%d", i);
10         i++;
11     }
12     printf("\n");
13     //B. for loop
14     i = 10;
15     for (; i < 10;)
16     {
17         printf("%d", i);
18         i++;
19     }
20     printf("\n");
21     //C. do-while loop
22     i = 10;
23     do
24     {
25         printf("%d", i);
26         i++;
27     } while (i < 10);
28     printf("\n");
29     return 0;
30 }
```

>The one that is not equivalent to the other two is loop C. When you run the code loop C has an output of 10 while loop A & B are none.

3.

```
1  #include <stdio.h>
2  int main(void)
3  {
4      int i;
5      for (i = 1; i <= 128; i *= 2)
6      {
7          printf("%d ", i);
8      }
9      return 0;
10 }
```

4.

```
1  #include <stdio.h>
2  ✓ int main(void)
3  {
4      //identify the variables.
5      int base = 2, exponent, power = 1;
6      //ask the user to enter the exponent.
7      printf("Enter the exponent: ");
8      scanf("%d", &exponent);
9      printf("%d^%d = ", base, exponent);
10     //solve for the power of two.
11     ✓ for (; exponent > 0; exponent--)
12     {
13         power *= base;
14     }
15     printf("%d\n", power);
16     return 0;
17 }
```

5.

```
1  #include<stdio.h>
2  int main(void)
3  {
4      //identify the variables.
5      int day,start_day,DaysInMonth,dt=1;
6
7      do
8      {
9          //ask the user to enter number of days in month.
10         printf("Enter number of days in month: ");
11         scanf("%d", &DaysInMonth);
12         if ( DaysInMonth< 28 ||DaysInMonth > 31)
13         {
14             printf("Invalid input! Choose between 28 and 31.\n");
15         }
16     } while (DaysInMonth < 28 || DaysInMonth> 31);
17
18     do
19     {
20         //ask to user to enter the starting day of the week (1=Mon, 7=Sun).
21         printf("Enter the starting day of the week (1=Mon, 7=Sun): ");
22         scanf("%d", &start_day);
23         if (start_day < 1 || start_day > 7)
24         {
25             printf("Invalid input! Choose between 1 and 7.\n");
26         }
27     } while (start_day < 1 || start_day > 7);
28     //show the days in a week.
29     printf("\nMon \tTue \tWed \tThu \tFri \tSat \tSun \n");
30     printf(" _____\n\n");
31
32     for(day=start_day;day>1;day--)
33     {
34         printf("\t");
35     }
36
37     while(dt<=DaysInMonth)
38     {
39         if(start_day!=0)
40         {
41             if(start_day%7==0)
42                 printf("\n");
43         }
44
45         printf("%d\t",dt);
46         dt++;
47         start_day++;
48     }
49     return 0;
50 }
```