

Solutions to Assignment 1 - C Programming

Question 1

The lines show the steps in which the expressions are evaluated.

1.

```
5 * ' '  
5 * 32  
160
```

2.

```
32 / 8 + 8  
4 + 8  
12
```

3.

```
y = ( 1 + 2 ) == ( 4 - 1 )  
y = 3 == 3  
y = 1  
1
```

4.

```
x = 1 != 2 + 3  
x = 1 != 5  
x = 1  
1
```

5.

```
6 <= 4 + 5 / 2  
6 <= 4 + 2  
6 <= 6  
1
```

```
i = 4 + ( 4 == 4 ) + 2 ;  
i = 4 + 1 + 2 ;  
i = 7
```

The numbers 2, 4 and 7 will be printed, each on a separate line.

Question 3

```
/* print multiples of 4 between 16 and 64 except for  
values between 32 and 48 */
```

```
main()  
{  
    int i ;  
    i = 16 ;  
    while ( i <= 64 ) {  
        if ( i >= 32 && i <= 48 ) {  
            ; /* do nothing */  
        } else {  
            printf ( "%d\n", i ) ;  
        }  
        i = i + 4 ;  
    }  
}
```

Question 2

The value of i starts at 0. Each time through the loop, the expression

```
i = i + ( i == 4 ) + 2
```

is evaluated to set the new value of i until it becomes greater than or equal to seven. The expressions evaluated on each iteration are as follows:

```
i = 0 + ( 0 == 4 ) + 2  
i = 0 + 0 + 2  
2
```

```
i = 2 + ( 2 == 4 ) + 2 ;  
i = 2 + 0 + 2 ;  
i = 4
```