Worksheet 3.1: Recursion Practice

(Extra Practice W/S from ICT Java Curriculum)

1.
```
int mist(int n){
      if ( n == 1){
            return 3;
      }else{
            return 3 * mist(n-1);
      }
}
```

What value does `mist(5)` return?

2.
```
void misty(int n){
      if(n > 4){
            misty(n%4);
      }
      System.out.print(n/4 + " ");
}
```

What sequence of numbers will the call to `misty(38)` yield?

3.
```
int mistier(int n){
      if ( n == 0){
            return 1;
      }else{
            return 4 * mistier(n-1) + 2;
      }
}
```

What value does `mistier(3)` return?

4.
```
int mistiest(int n){
      if ( n == 6){
            return 6;
      }else{
            return 2 * mistiest(n+1);
      }
}
```

What value does `mistiest(2)` return?

5.
```
int whoKnows(int n){
      if ( n <= 1){
            return n;
      }else{
            return n + whoKnows(n-1);
      }
}
```

What value does `whoKnows(5)` return?

6.
```
int weird(int p, int q){
      if ( p == 1){
            return p +1;
      }else if(q == 0){
            return weird(p-1, q);
      } else{
            return weird(p-1, weird(p, q-1));
      }
}
```

What does `weird(2,2)` return?

7.
```
int weirder(int r, int s){
      if ( r == 0 || r == s){
            return 1;
      }else{
            return weirder(r-1, s) + weirder(r-1, s-1);
      }
}
```

What is the return value of `weirder(3,2)`?

8.
```
void weirdest(int x){
      if ( x > 1){
            weirdest(x/2);
      }else{
            System.out.print(x + " ");
      }

}
```

What is the output of the call `weirdest(40)`?