

Q12. True or False

- a. False
- b. True
- c. True
- d. False
- e. True
- f. False
- g. False
- h. True
- i. True
- j. True \*
- k. True \*

Q43. With an array based stack, when the object is created, memory is allocated based on the size of the array and cannot be changed after. So if there is a need for a larger array, a new object has to be created. If there is no need for the excess space in the array, the memory will be wasted. With a linked list, the nodes take up only the exact amount of memory needed for the list. No more no less.

Q50.

- a.  $5 \ 7 \ 8 \ * \ + = 5 + (7 * 8) = \mathbf{61}$
- b.  $5 \ 7 \ 8 \ * \ + = 5 * (7 + 8) = \mathbf{75}$
- c.  $5 \ 7 \ + \ 8 \ * = (5 + 7) * 8 = \mathbf{96}$
- d.  $1 \ 2 \ + \ 3 \ 4 \ + \ 5 \ 6 \ * \ 2 \ * \ * \ + = (((5*6)*2)*(3+4)+(1+2) = \mathbf{423}$

Q4.

a. **The base case:**

```
if (base > limit)
    return - 1
    and
else
    if (base == limit)
        return 1
```

b. **The general case:**

$base * puzzle(base + 1, limit)$

Q5.

- a. -1
- b. 120
- c. 1