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HW 4

1)
```
void  large(int arr[], int low, int high) {
        if (low < high) {
            int piv = arr[high];
            int i = (low - 1);
          for(int j = low; j<=high -1; j++) {
                if (arr[j] < piv) {
                    i++
                    swap(arr[i], arr[j]);
                }
            }
            swap(arr[i+1], arr[high]);
          int p = i+1;
          large(arr, low, p - 1);
          large(arr, p+1, high);

          return arr[sizeof(arr) - 1];

}
```

$M(n) = 2M(\frac{n}{2}) + n$ $a = 2$ $b = 2$

$d = 1$

$2 = 2^1$

$M(n) \in \Theta(n\log n)$

2)

```
double divide( n) {
    if (n==1)
        return 3;
    else{
     int x=divide(n/2);
      if(n%2 == 0)
            return x*x;
      else
            return x*x*a;
     }
}
```

3)

```
triomio (n, loc){
    if (n==2){
        place tile on left side
        return
    }
    Place L-shaped tromino
    divide in ~~4~~ n/2 x n/2 subboards
    triomio (n/2, loc1);
    triomio (n/2, loc2);
    triomio( n/2, loc3);
    triomio( n/2, loc4);
}
```