1-20) (1) O(n), n>=8일 때 $\log_2 n + n + 3 <= 2n$ 로그함수와 다항함수중 다항함수가 빠르게 증가함 (2) O($\log_2 n$), n>=2일 때 $\log_2 n + n <= 2 \log_2 n$ 다항함수와 $\log_2 n$ 중 후자가 빠르게 증가함

2-10) 실행화면

1: 소수->문수 2:소수의 합-> 문수 1 소수를 입력하세요: 3.14 157/50

1: 소수->분수 2:소수의 합-> 분수 2 첫번째소수를 입력하세요: 0.125 두번째소수를 입력하세요: 0.125 1/4

```
2-17 (1) 실행화면
1프레임:8 0
[(8, 0, '-', 8)]
total=8
2프레임:4 3
[(8, 0, '-', 8), (4, 3, '-', 7)]
total=15
1014:153 골프레임:8 2 [(8, 0, '-', 8), (4, 3, '-', 7), (8, 2, '/', 10)] total=25 4프레임:4 6 [(8, 0, '-', 8), (4, 3, '-', 7), (8, 2, '/', 14), (4, 6, '/', 10)] total=39
total=29
5팔레임: 2 6
[(8, 0, '-', 8), (4, 3, '-', 7), (8, 2, '/', 14), (4, 6, '/', 12), (2, 6, '-', 8)]
total=49
 6프레임:10 0
[(8, 0, '-', 8), (4, 3, '-', 7), (8, 2, '/', 14), (4, 6, '/', 12), (2, 6, '-', 8), (10, 0, '/', 10)] total=59
total=59
7프레임:90
[(8, 0, '-', 8), (4, 3, '-', 7), (8, 2, '/', 14), (4, 6, '/', 12), (2, 6, '-', 8), (10, 0, '/', 19), (9, 0, '-', 9)]
total=77
8프레임:10 0
[(8, 0, '-', 8), (4, 3, '-', 7), (8, 2, '/', 14), (4, 6, '/', 12), (2, 6, '-', 8), (10, 0, '/', 19), (9, 0, '-', 9), (10, 0, '/', 10)] total=87
9프레임:8 2
[(8, 0, '-', 8), (4, 3, '-', 7), (8, 2, '/', 14), (4, 6, '/', 12), (2, 6, '-', 8), (10, 0, '/', 19), (9, 0, '-', 9), (10, 0, '/', 20), (8, 2, '/', 10)]
 total=107
total=107
(입력) 10프레임
10프레임:10 0
추가던지기 2회:10 10
[(8, 0, '-', 8), (4, 3, '-', 7), (8, 2, '/', 14), (4, 6, '/', 12), (2, 6, '-', 8), (10, 0, '/', 19), (9, 0, '-', 9), (10, 0, '/', 20), (8, 2, '/', 20), (10, 0, '/', 30)]
Total=147
1프레일:10 0
[(10, 0, '/', 10)]
total:19
2프레일:10 0
[(10, 0, '/', 20), (10, 0, '/', 10)]
total:30
3프레일:10 0
[(10, 0, '/', 30), (10, 0, '/', 20), (10, 0, '/', 10)]
total:60
4프레일:10 0
```

```
[(10, 0, ' /, 30), (10, 0, ' /, 20), (10, 0, '/', 10)]
total=60
4모리임:10 0
[(10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 20), (10, 0, '/', 10)]
total=50
5프레임:10 0
[(10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 20), (10, 0, '/', 10)]
total=120
6프레임:10 0
[(10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 20), (10, 0, '/', 10)]
total=150
7프레임:10 0
[(10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 20), (10, 0, '/', 10)]
total=180
8포크레임:10 0
[(10, 0, ''/, 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 30), (10, 0, '/', 3
    total=210
9프레임:10 0
[(18, 6, '/', 30), (18, 6, '/', 36), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 20), (18, 6, '/', 10)]
total=230
(일턱) 19프레임
18프레임:18 0
크가던지기 2회:18 18
[(18, 6, '/', 30), (18, 6, '/', 38), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30), (18, 6, '/', 30)]
```

3-6) 실행화면

문자열을 입력: abc 회문이 아닙니다.

문자열을 입력: aabbcbbaa 회문입니다.

- 4-5) (2) -/*a+b*c d d *a c
 - (3) a b + c * d e /+ f g h / i * +
 - (4) (a/b-c) + d*e -a*c
 - (7) a b / c- d e * + a c * -

4-18) 실행화면

중위수식을 입력하세요: 12*(25-15)+(13+4*2)/2 중위수식 = ['12', '*', '(', '25', '-', '15', ')', '+', '(', '13', '+', '4', '*', '2', ')', '/', '2'] 후위수식 = ['12', '25', '15', '-', '*', '13', '4', '2', '*', '+', '2', '/', '+'] 값 = 130.5

중위수식을 입력하세요**: (25-15)+((13+4*2)/2** => 괄호 매칭 오류

중위수식을 입력하세요: (15+3)*4/123-54*2+(56-30) 중위수식 = ['(', '15', '+', '3', ')', '*', '4', '/', '123', '-', '54', '*', '2', '+', '(', '56', '-', '30', ')'] 후위수식 = ['15', '3', '+', '4', '*', '123', '/', '54', '2', '*', '-', '56', '30', '-', '+'] 값 = -81.41463414634147 5-15) 실행화면

```
Game Start!
player 초기 위치 [ 1 0 0 0 0 0 0 2 0 0 0 0 0 0 ] (방향 =>)
1 (5, 3) 8칸 전진 [ 0 0 0 0 0 0 0 1 0 0 0 0 0 0 ] (방향 =>)
1 player won!
```

```
Game Start!
               [10000000020000000](방향 =>)
player 초기 위치
                [0000000120000000](방향 =>)
1 (5, 2) 7칸 전진
2 (5, 2) 7환
                [0000000100000002](방향 =>)
1 (4, 5) 9칸 전진
                [1000000000000002](방향 =>)
2 (6, 3) 9칸 전진
                [10000000020000000](방향 =>)
1 (3, 4) 7칸
        전진
                                       1 (방향 =>)
                [0000000120000000
2 (3, 6) 9칸
        전진
                 0200000100000000
1 (3, 2) 5칸
        전진
                [0200000000001000](방향 =>)
        전진
2 (5, 2) 7칸
                [00000000020001000](방향 =>)
1 (3, 6) 9칸 전진
                [0000010020000000] (방향 =>)
2 (6, 4) 10칸 전진
                [0020010000000000](방향 =>)
1 (3, 2) 5칸 전진
                [0020000000100000](방향 =>)
2 (6, 1) 7칸 전진
                [0000000002100000](방향 =>)
1 (4, 1) 5칸 전진
                [ 0000000000200001 ] (방향 =>)
2 (1, 5) 6칸 전진
                [0000000000000001](방향 =>)
2 player won!
```

<개별평가표>

| 문항 | 완성도(0~100%)(A) | 배점(B) | A*B |
|---------------|----------------|-------|-------|
| 1.20 시간복잡도 | 100% | 6 | 6 |
| 2.10 소수-분수 | 100% | 10 | 10 |
| 2.17 (1)볼링게임 | 100% | 15 | 15 |
| 3.6 재귀함수 | 100% | 10 | 10 |
| 4.5 수식변환 | 100% | 12 | 12 |
| 4.18 수식평가(수정) | 100% | 20 | 20 |
| 5-15 링크드 술래잡기 | 95% | 27 | 25.65 |
| | | 합계 | 98.65 |