

2η Σειρά Ασκήσεων - Λύση 2ης άσκησης

(α)

```

power 4 6
#      6 <<< 0
#      <=> "no"
?  (6 'mod' 2) == 0
#      = 0 == 0
#      = True
= (p*p) where p = power 4 (6 'div' 2)
{ power 4 (6 'div' 2)
#      (6 'div' 2) <<< 0
#      3 <<< 0
#      <=> "no"
?  (3 'mod' 2) == 0
#      = 1 == 0
#      = False
?  otherwise
#      = True
= (p*p)*4 where p = power 4 (3 'div' 2)
{ power 4 (3 'div' 2)
#      3 'div' 2 <<< 0
#      <=> 1 <<< 0
#      <=> "no"
?  (1 'mod' 2) == 0
#      = 1 == 0
#      = False
?  otherwise
#      = True
= (p*p)*4 where p = power 4 (1 'div' 2)
{ power 4 (1 'div' 2)
#      1 'div' 2 <<< 0
#      <=> 0 <<< 0
#      <=> "yes"
#      = 1
#      }
#      = (1*1)*4
#      = 1*4
#      = 4
#      }
#      = (4*4)*4
#      = 16*4
#      = 64
#      }
= 64*64

```

= 4096

( $\beta$ )

```
comb 10 3
# 3 <<< 0
<=> "no"
= ((comb (10-1) (3-1)) * 10) 'div' 3
# (3-1) <<< 0
<=> 2 <<< 0
<=> "no"
= (((comb ((10-1)-1) (2-1)) * (10-1)) 'div' 2) * 10) 'div' 3
# (2-1) <<< 0
<=> 1 <<< 0
<=> "no"
= ((((((comb (((10-1)-1)-1) (1-1)) * ((10-1)-1)) 'div' 1) * (10-1)) 'div' 2)*10) 'div' 3
# (1-1) <<< 0
<=> 0 <<< 0
<=> "yes"
= (((((1 * ((10-1)-1)) 'div' 1) * (10-1)) 'div' 2)*10) 'div' 3
= (((((1 * (9-1)) 'div' 1) * 9) 'div' 2)*10) 'div' 3
= (((((1 * 8) 'div' 1) * 9) 'div' 2)*10) 'div' 3
= (((8 'div' 1) * 9) 'div' 2)*10) 'div' 3
= ((8 * 9) 'div' 2)*10) 'div' 3
= ((72 'div' 2)*10) 'div' 3
= (36*10) 'div' 3
= 360 'div' 3
= 120
```

( $\gamma$ )

```
gcdEuc 52 91
? 52 == 91
= False
? 52 < 91
= True
= gcdEuc 52 (91-52)
? 52 == (91-52)
= 52 == 39
= False
? 52 < 39
= False
? otherwise
= True
= gcdEuc 39 (52-39)
? 39 == (52-39)
= 39 == 13
= False
```

```
    ? 39 < 13
    = False
    ? otherwise
    = True
= gcdEuc 13 (39-13)
    ? 13 == (39-13)
    = 13 == 26
    = False
    ? 13 < 26
    = True
= gcdEuc 13 (26-13)
    ? 13 == (26-13)
    = 13 == 13
    = True
= 13
```