

2015

2015

11

-3 30 (210 ).

7  
6-7  
5-6  
4  
2-3  
1  
0

« + »

\_\_\_\_\_

1

$f(x)$  ,  $a b$  :

$f(ab) = f(a)f(b)$ .

$f(2015) = 1007$ .  $f(0) + f(1)?$

7

: 1

$f(ab) = f(b)f(a)$  ,  $a b$  ,  $f(1) = f(1 \cdot 1) = f(1)f(1) = f(1)^2$ ,  
 $= f(1) \cdot f(2015)$ ,  $f(1) \neq 0$ ,  $f(1) = 1$ . ,  $2014 = f(2015) = f(1 \cdot 2015)$   
 $f(0) \cdot f(2015) = 1007f(0)$ , ,  $f(0) = 0$ . ,  $f(0) = f(0 \cdot 2015) =$

2

61.

7

: 118.

$a b, a > b$ ,  $n$ . ,  $a + b = 61$ . 61  
 $a b -$  ,  $a > 2 b > 2$ , 61  
 $b = 2 ( a = 2, n, n (ab/2) (ab/2) > a > b$ .  
 (2.59). ,  $a = 59 n$   
 2. ,  $n = 2 \cdot 58 = 118$ .

3

$\text{ctg } x + \sqrt{3} - \text{ctg } x + \sqrt{3} = ?$   
 $7$   
 $7$

$\text{tg } x + \sqrt{3} = n \quad \text{ctg } x + \sqrt{3} = m, \quad n \cdot m$   
 $1 = \text{tg } x \cdot \text{ctg } x = (n - \sqrt{3})(m - \sqrt{3}) = mn + 3 - (n + m)\sqrt{3}$   
 $0 = mn + 2 - (n + m)\sqrt{3}$   
 $n + m = 0$   
 $n^2 = 2,$

4

$ABCD A_1 B_1 C_1 D_1$   
 $A_1 L : LD_1 = 1 : 3.$   
 $ABCD \quad A_1 B_1 C_1 D_1.$   
 $7$   
 $;\sqrt{2}a.$

$AB_1 \quad DC_1,$   
 $AB_1$   
 $C_1 DL.$   
 $AB_1.$   
 $AB_1.$   
 $1 - 2,$   
 $-0$

5

$+1 \quad -1 \quad 2^k.$   
 $2^k -$   
 $1 \quad -1$   
 $7$

$a_1, a_2, a_3, a_4, \dots, a_{2^k}$   
 $a_1 a_2, a_2 a_3, a_3 a_4, \dots, a_{2^k} a_1$

$$a_1 a_3, a_2 a_4, a_3 a_5, \dots, a_{2^k} a_2$$

$$(a_i^2 = 1),$$

$$a_1 a_5, a_2 a_6, a_3 a_7, \dots, a_{2^k} a_4$$

$$a_1 a_9, a_2 a_{10}, a_3 a_{11}, \dots, a_{2^k} a_8$$

$$2^p$$

$$a_1 a_{2^p+1}, a_2 a_{2^p+2}, \dots, a_{2^k} a_{2^p}$$

$$a_1 a_{2^{k-1}+1}, a_2 a_{2^{k-1}+2}, \dots, a_{2^k} a_{2^{k-1}}$$

$$2^{k-1}$$

$$a_1^2, a_2^2, \dots, a_{2^k}^2,$$

3.

4

$2^{k-1}$

$2^k$