P108-109

23：

Guess：The harmonic mean of reals of x and y is less than their geometric mean.

Prove: To prove 2xy/(x + y) < √（x\*y）, just needs to prove 2√(x\*y)<(x+y). Square both sides of the equation. And we needs to prove 4(x\*y)<(x+y)^2. It’s equal to prove (x-y)^2>0. So it is easy to prove it.

43:

Because the number of squares is even, so there are either even squares in row or in line. In the former case, tile the board flatly. In the other, tile the board vertically.

P152-156

11：

a);

35：

No. Suppose that A={a}, B={b, c}, C={d}, g(a)=b, f(b)=d, f(c)=d. Then f and f ◦g are onto, but g is not.

79：

a): S has m different elements. So we assign first to 1, second to 2 and so on. Then we can achieve it.

b): Because of a), we can find A={1,2,……m}, B={1,2,……m}, then S is to A and T is to B. So there is a one-to-one correspondence between S and T.

P167-170

25:

a): first one 1 and one 0, then two 1s and two 1s, then three 1s and three 2s and so on; 1,1,1;

b): The positive integers are listed by one odd and two evens sequentially; 9,10,10;

c): an=2^(n-1) when n is odd; an=0 when n is even. 32,0,64;

d): an=3\*2^(n-1); 384,768,1536;

e): an=22-7n; -34,-41,-48;

f): an=(n^2+n+4)/2; 57,68,80;

g): an=2\*n^3; 1024,1458,2000;

h): an=n!+1; 362881,3628801,39916801;

33:

a): Σ(i=1 2)Σ(j=1 3) (i+j) = Σ(i=1 2) (3i+6) =21;

b): Σ(i=0 2)Σ(j=0 3) (2i+3j) = Σ(i=0 2) (8i+18) = 78;

c): Σ(i=1 3)Σ(j=0 2) i = Σ(i=1 3) 3i = 18;

d): Σ(i=0 2)Σ(j=1 3) ij = Σ(i=0 2) 6i = 18;

41

Sn^2-1 = 1\*3+x\*5+……+(n-1)\*(2n-1) = Σ(i=1 n) (2i^2-3i+1) = (n+1)\*(2n+1)\*n/3-3\*(n+1)\*n/2+n = n(4n^2-3n-1)/6

Sn^2+k = Sn^2-1+(k+1)\*n = n(4n^2-3n-1)/6 + (k+1)\*n

So Sm = n\*(n-1)\*(4n+1)/6 + (m-n^2)\*n = nm-(2n^3+3n^2+n)/6 n=[根号m]