

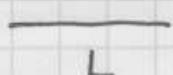
A241600



①




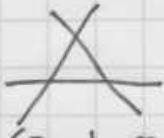
$a(n)$ = no. of ways of arranging n lines
in the (affine) plane.



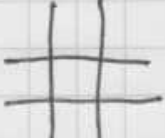
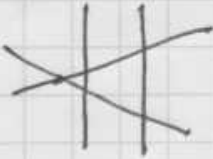
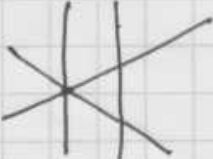
N. J. A. Sloane, May 15 2014


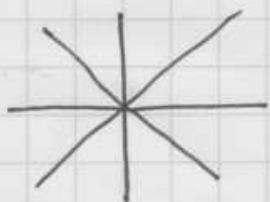
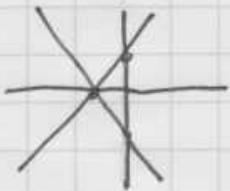

Notation: P_n = n parallel lines
 S_n = star (n lines through a point)
 G_n = n lines in general position
 $L = P_1 = S_1 = G_1$ = single line
 i = no. of interior points
 π = perimeter vector (measured in edges)

$a(1) = 1$  (1.1)

$a(2) = 2$  
 (2.1) P_2 (2.2) S_2

$a(3) = 4$    
 (3.1) P_3 (3.2) P_2L (3.3) S_3 (3.4) G_3

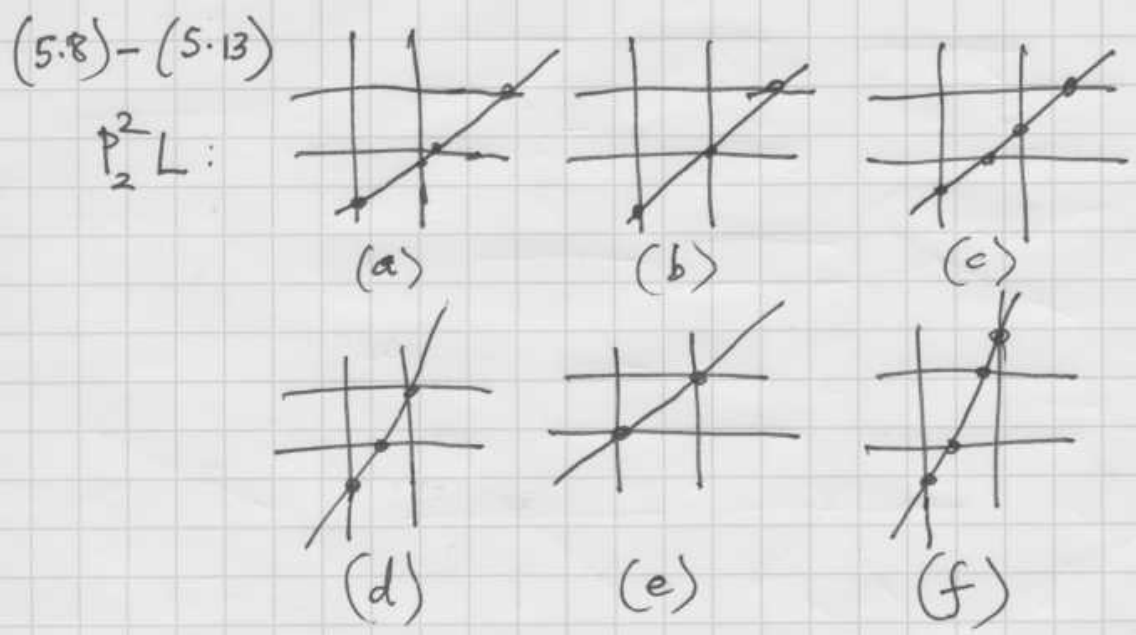
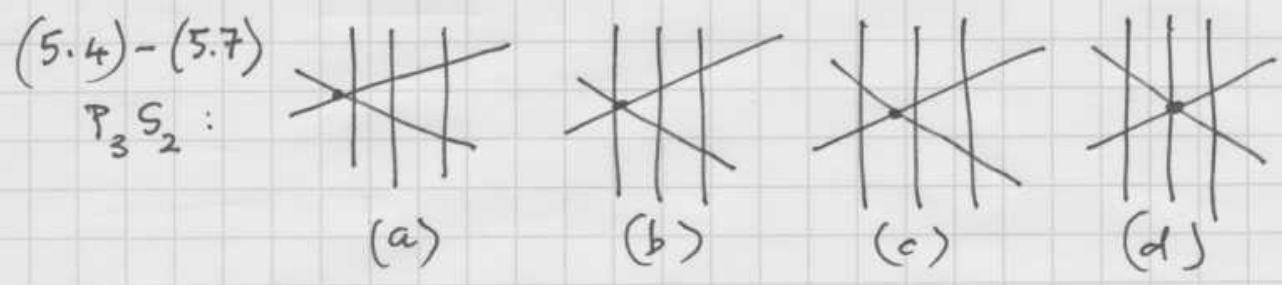
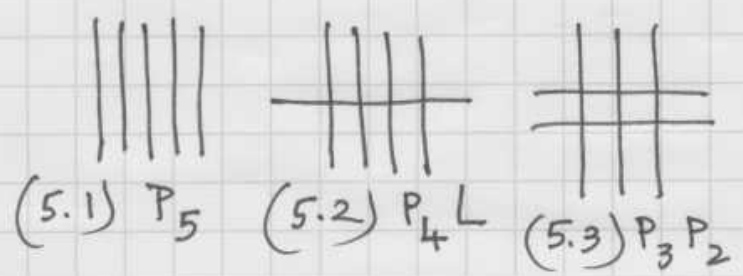
$a(4) = 9$     
 (4.1) P_4 (4.2) P_3L (4.3) P_2^2 (4.4) $P_2S_2(a)$ (4.5) $P_2S_2(b)$

   
 (4.6) $P_2S_2(c)$ (4.7) S_4 (4.8) S_3L (4.9) G_4

$a(5) = 47$. Summary:

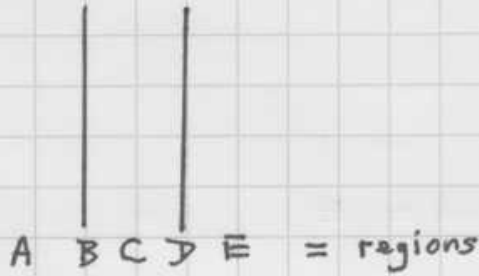
(2)

$P_5: 1$, $P_4L: 1$, $P_3P_2: 1$, $P_3S_2: 4$, $P_2^2L: 6$,
 $P_2G_3: 14$, $P_2S_3: 3$, $S_5: 1$, $S_4L: 1$, ~~$S_3^2: 6$~~ , ~~$S_2^2L: 6$~~ ,
 $S_3^2: 3$, $S_3S_2: 6$, $G_5: 6$.



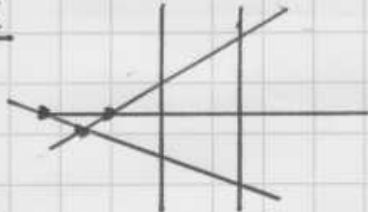
$(5.14) - (5.27)$

$P_2 G_3$

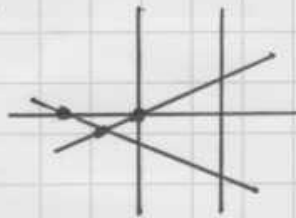


ABCDE

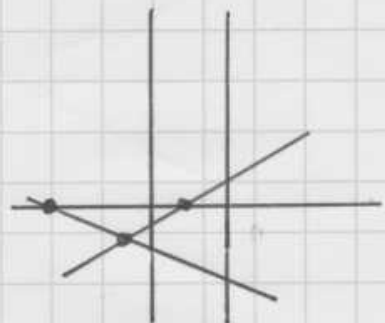
3 0 0 0 0



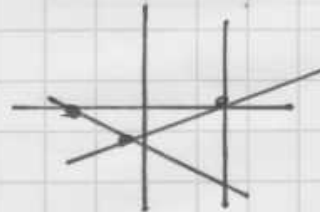
2 1 0 0 0



2 0 1 0 0



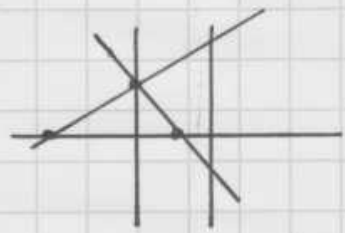
2 0 0 1 0



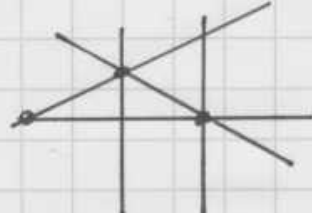
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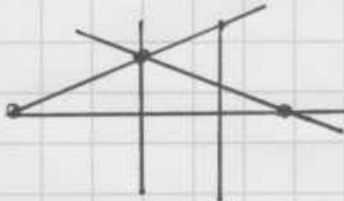
1 1 1 0 0



1 1 0 1 0



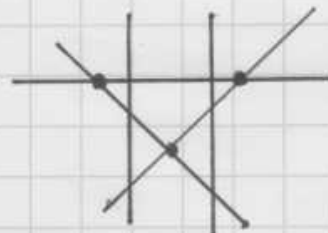
1 1 0 0 1



1 0 1 1 0



1 0 1 0 1



1 0 2 0 0



0 1 2 0 0



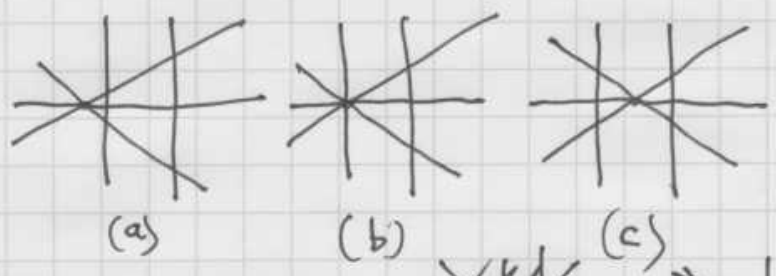
0 0 3 0 0



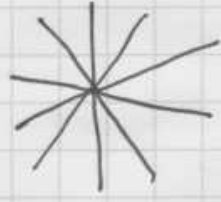
0 1 1 1 0



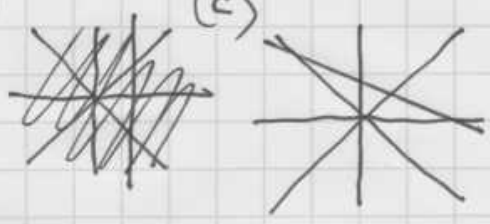
(5.28) - (5.30)
 $P_2 S_3$



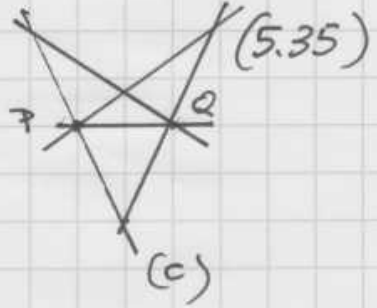
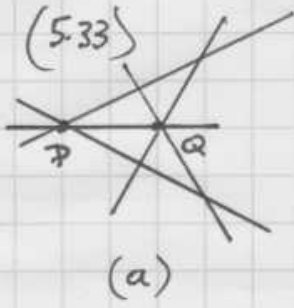
(5.31)
 S_5



(5.32)
 $S_4 L$

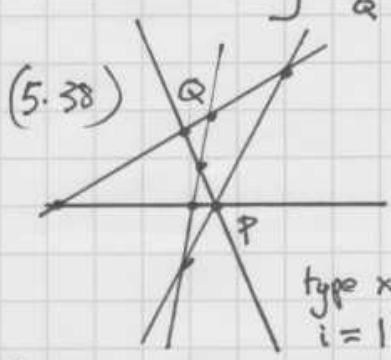
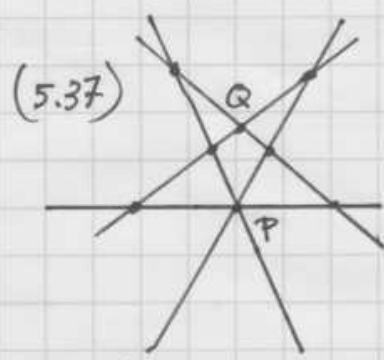
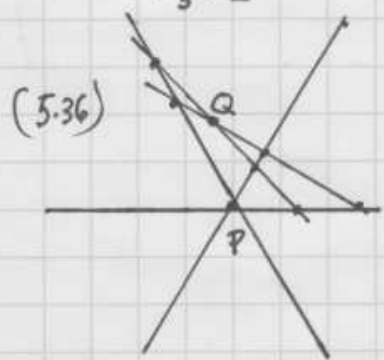
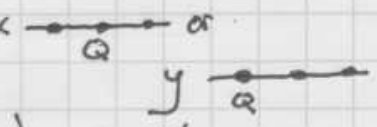


(5.33) - (5.35)
 S_3^2
 $P, Q = \text{centers}$



(5.36) - (5.41)
 $S_3 S_2$

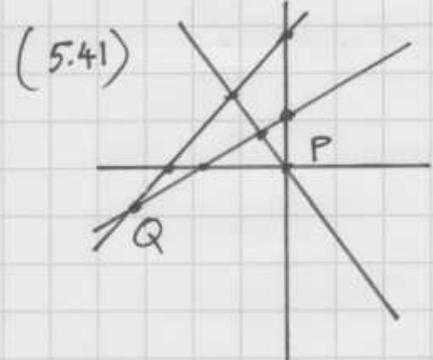
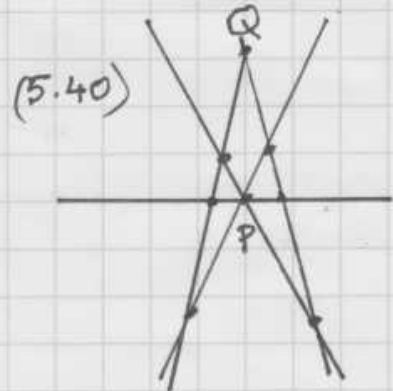
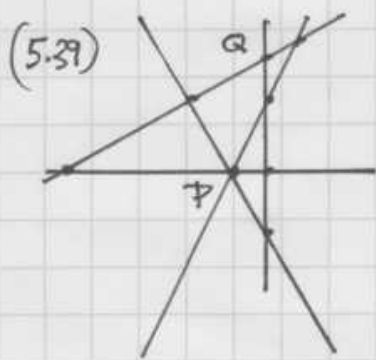
P, Q are centers. Lines through Q are x or y



type $xx, i=1, \pi = P21Q22P$

type $xx, i=0, \pi = P111Q111P$

$\pi = P1112Q11P$



type $xy, i=0$
 $\pi = P12Q1121P$

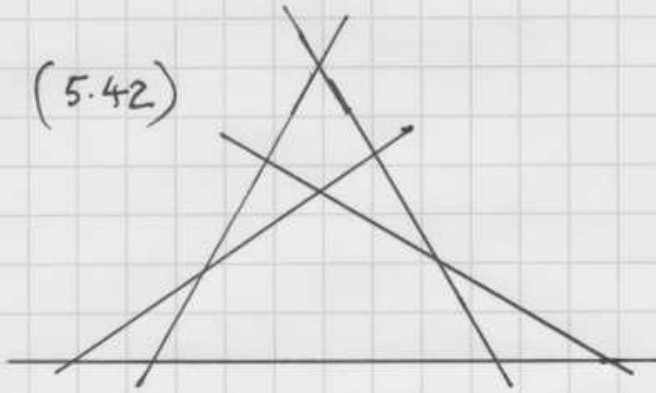
type $yy, i=0$
 $\pi = P13Q31P$

type $yy, i=1$
 $\pi = P11Q32P$

(5.42) - (5.47): G_5

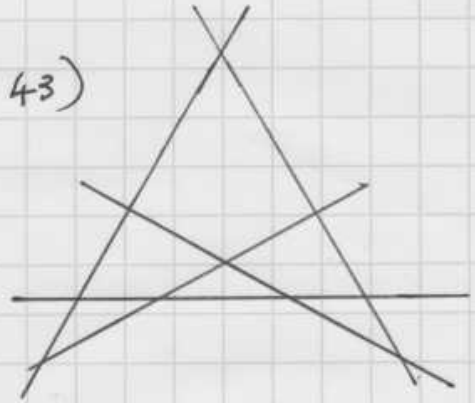
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(5.42)



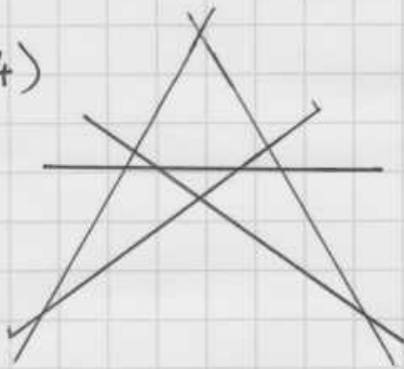
$i=1, \pi=31221$

(5.43)



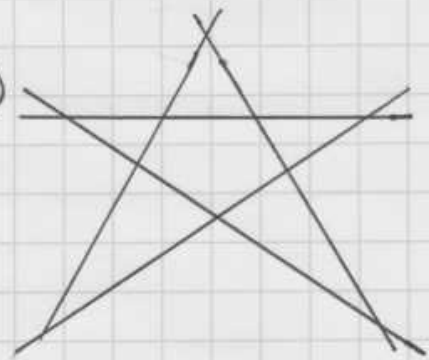
$i=1, \pi=33111$

(5.44)



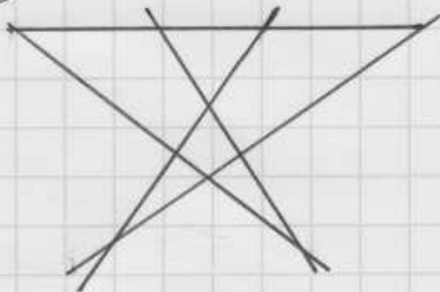
$i=2, \pi=3311$

(5.45)



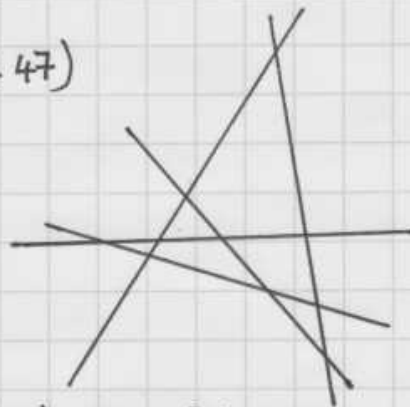
$i=0, \pi=1111111111$

(5.46)



$i=1, \pi=311111$

(5.47)



$i=1, \pi=31212$