

⑦ $7, 47, 99$
 $\rightarrow \boxed{48, 48}$

⑧ $30+20+45 = 1h35$
 $14h40 + 1h35 = \boxed{16h15}$

⑨ $4 \times 6 = 24$
 $5 \times 9 = 45$
 $2 \times 11 = 22$

 91

12-1? $\boxed{5 \times 6}$

⑩ ~~Many~~ $a+b$
 $a = 19 - b \rightarrow a+b = \boxed{19}$

⑪ $91 \times 12 = 7 \times \underbrace{(13 \times 12)}_{156}$

7×91 , reste 5×91 à partager en 7

$91 = 65 + 26$
 $[9 + 2]$

$5+2$
 $5+2$
 $5+1+1$
 $5+2$
 $5+2$

$7+5+3+3 = \boxed{18}$

⑫ $f, f+1, f+2$

$n, n+1, \dots, n+4$

$p, p+1, \dots, p+6$

$3f+3 = 5n+10 = 7p+21 = x \quad x = 3 \times 5 \times 7 = 105$

$c = 2(f+1) = \frac{2}{3} 105 = \boxed{70}$

13) → m tous impairs?

1 3 5 7 9 11 13 15

~~1 3 5 7 9 11 13 15~~

15) 0, 1, 2, ..., 55 [111] → 56 nb.

Si $n \in E$, alors $11-n \notin E$
et $n \neq 0$

→ élimine $\frac{110}{2} = 55$ nombres.

$N_{\max} \leq 111 - 55 = \boxed{56}$

$56 + 1 = \boxed{57}$

16) $E = \{0, \dots\}$

$\forall (x, y) \in E^2$

$\forall 1 \leq n \leq 11, \exists (x, y) \in E^2, x - y = n$

11

$10 = 11 - 1$

$9 = 11 - 2$

$8 = 11 - 3$

$7 = 11 - 4$

$6 = 11 - 5$

→ 1, 2, ~~3~~, 4, 5, 11? → 26

~~11, 9, 7, 4~~

Golomb

~~4~~ 4 marques → 10 poss. < 11 → impossible

→ 5 marques.

0, 1, 3, ~~4~~, 5, 11

0, 1, 2, ~~3~~, 8, 11

~~0, 1, 2, 3, 9, 11~~

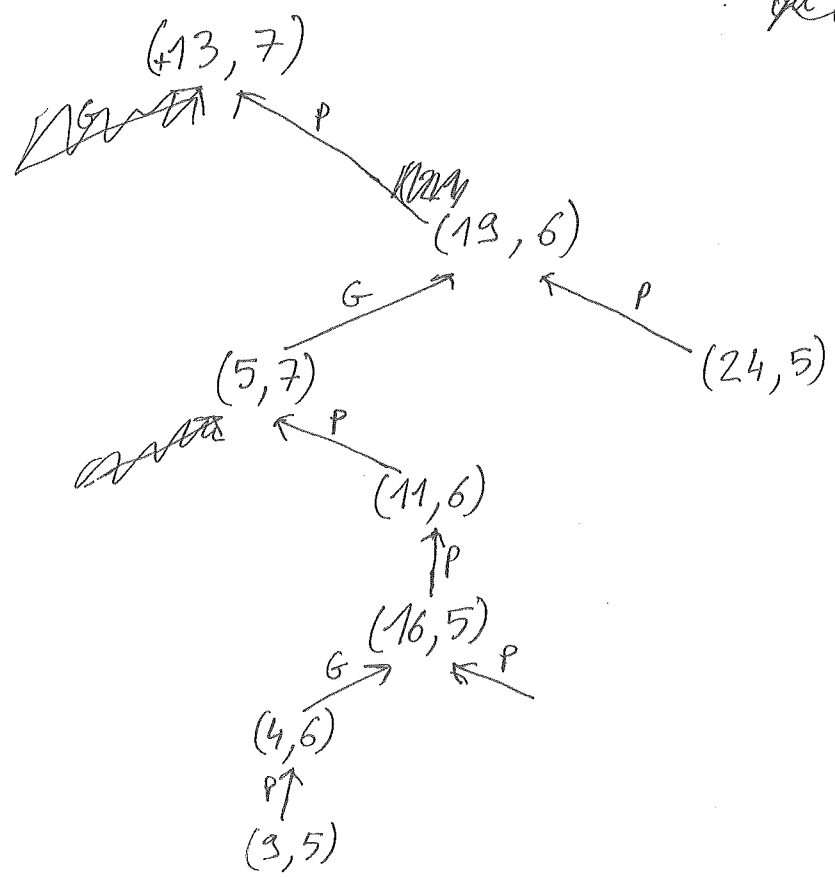
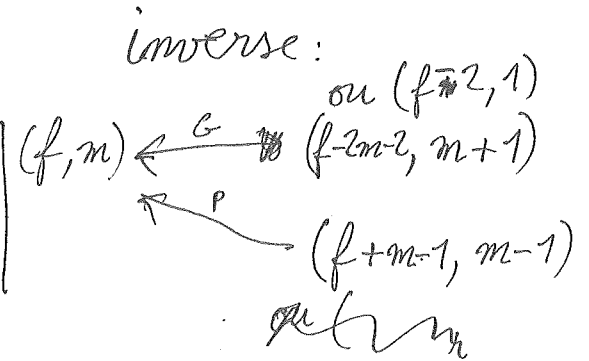
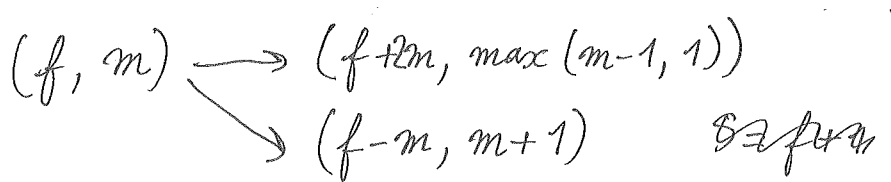
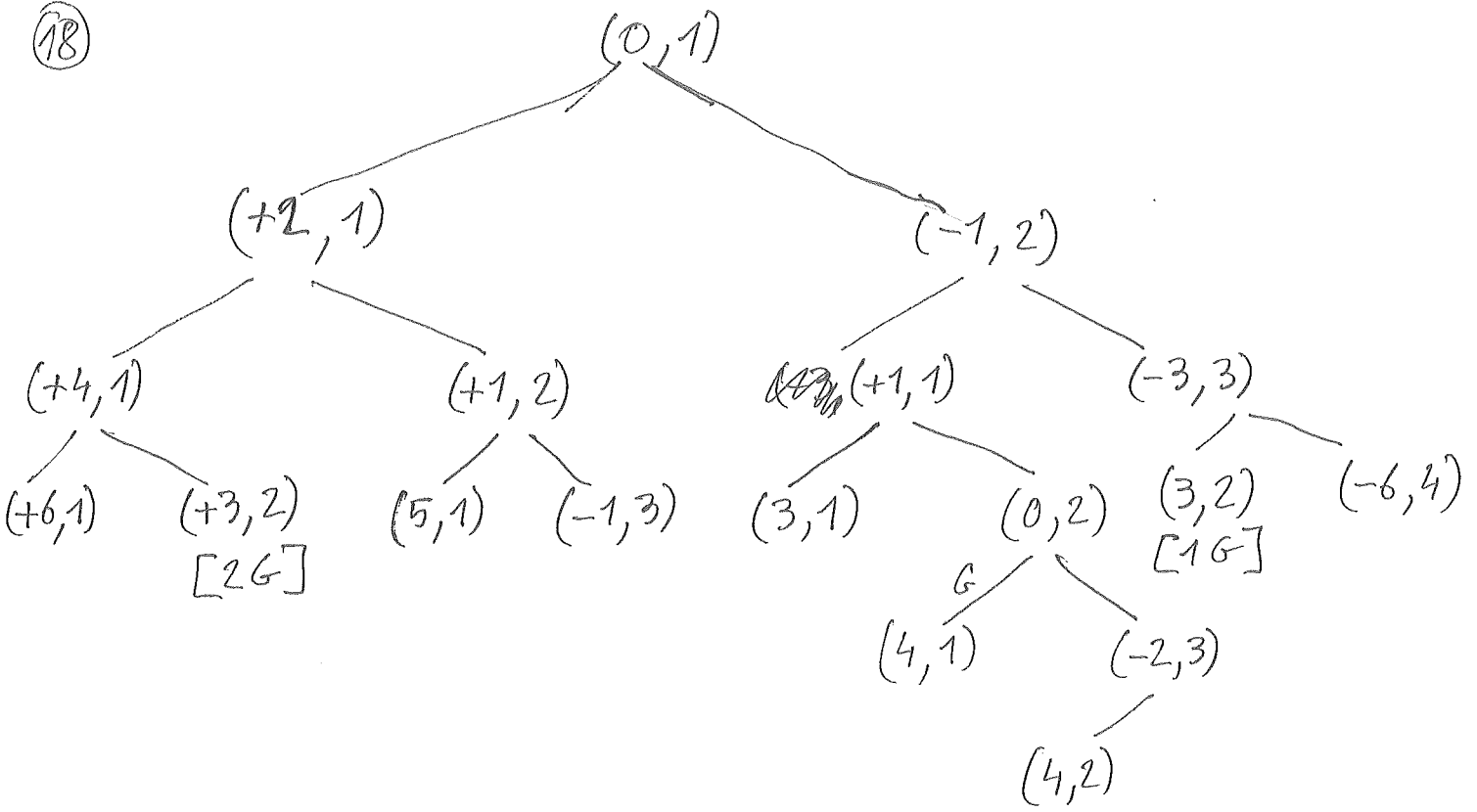
3, 4, 5, 6, 7

0, 1, 2, ~~3~~, 5, 11 (7)

0, 1, 2, 3, ~~4~~, 7, 11

1 2 3 7 11 → $S = \boxed{24}$

18



6 ou 7 OK