(7)

M: 35
C: 17

$\frac{35-17}{2} = \boxed{9}$

---

(9)

~~[illegible]~~ S O B

A: ∼ O ~~B~~ et/ou B → S O B E

E: ∼ B uniquement → SOABE

---

(10)

croisements: 2. → $64 - 4\times3 + 1$ ~~[illegible]~~

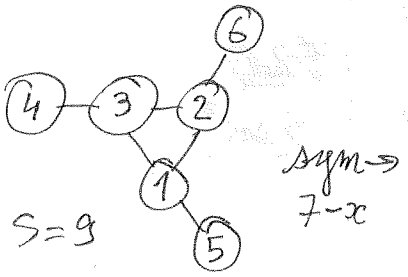
$= \boxed{53}$

---

(11)

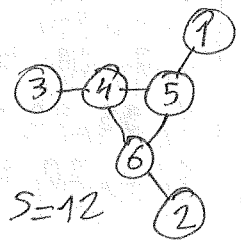
$S \geq 2+3+4 = 9$

$S \leq 3+4+5 = 12$

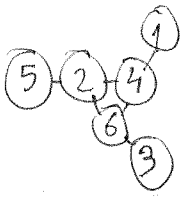


S=9

sym → 7−x



S=12



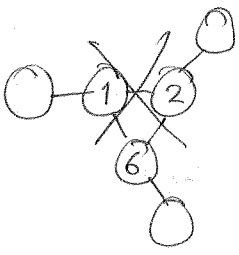
↕ sym. 7−x

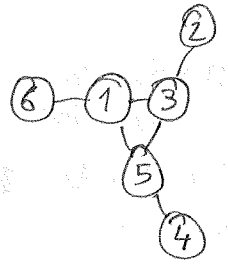
S=10?

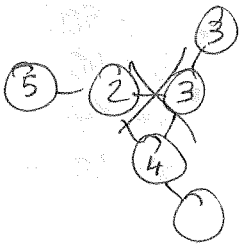
$3S = \underbrace{1+2+\ldots+6}_{21} + s$

$30 = 21 + s \rightarrow s = 9$

$9 = 1+2+6$
$= 1+3+5$
$= 2+3+4$







~~3 sol°: 6, 15 et 120~~

4 sol°: 6, 15, 48 et 120

S=9 → s=6

S=10 → s=9

S=11 → s=12

S=12 → s=15

(12)

7, 16, 25, ..., 61

7, 16, 25, 34, 43, 52, 59, 61 — 77, 86, 95, 106 ...

a 9_9 → (a+1) 0__0
$0 \leq a \leq 8$

96 → 105

96 → 15
97
98
99 → 18

100
101
102
103
104
105

→ 96

---

(15)

81×3 49×7 = 343

$abc = x^y$

128 243 125 343
256 729 625
512

729 − 125 = 604

---

(16)

$1 < a < b < c$

$c \geq 40$

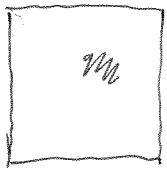
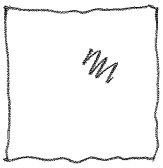
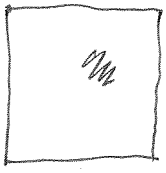
- c = 40?
  - b ≠ 30 car 130 = 40 + 3×30
  - b ≠ 20
  - b ≠ 10
  - 40+40+9+9 < 140 → non
- c = 50?
  - b ≠ 40 (50+50+40)
  - b ≠ 30 (50+50+30)
  - b = 20 → 50+50+20+20 = 140
    130 = 50 + 4×20
  - a = 3, 6, 7, 8, 9
    - 50+50+9+9+9 < 130
    - 50+50+20+9+1 < 130 → non
    - 50+50+20+9 < 130
- c = 60?
  - → pas de 40, 30, 20, 10
  - → imp.

1, 3, 20, 50
1, 6, 20, 50
1, 7, 20, 50
1, 8, 20, 50
1, 9, 20, 50

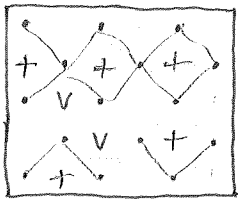
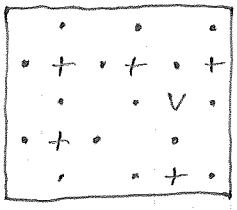
5 sol°

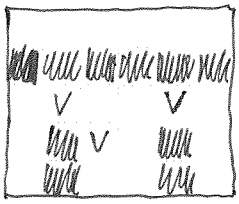
- c = 70! non
- c = 80?
  - → pas de 70, 60, 40, 20, 10
  - → pas de 30 (30+30+80)
  - → b = 50 → non (130)
- c = 90?
  - → pas de 50, 40, 30, 20, 10

non.

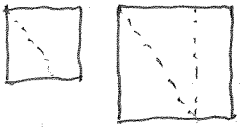
B     H

(13) → $2 \times 5 = 10$

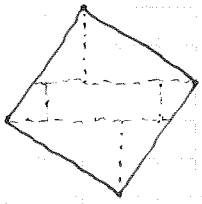
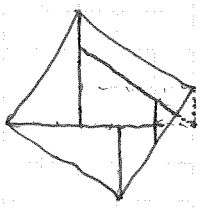
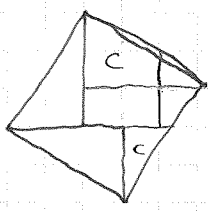


(14)

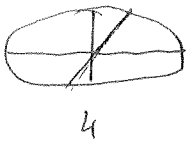


$\sqrt{13} \times \sqrt{13}$ $13 = 2^2 + 3^2$

77

(17)



| → H=1 → 4

D=2? → R=1?

~~$x^2+y^2+bz^2$~~

$$\begin{cases} x^2+4y^2+16z^2=4 \\ x+by+cz=0 \end{cases} \qquad x^2+y^2+z^2=r^2$$

$$(by+cz)^2+4y^2+16z^2=4$$

$$(b^2+4)y^2+(c^2+16)z^2+(2bc)yz=4$$

$$3y^2+15z^2=4-r^2$$

$$y^2=\frac{4-r^2}{3}-5z^2 \longrightarrow (b^2+4)\left(\frac{4-r^2}{3}\right)-4 + (c^2+16-5(b^2+4))z^2 = -2bc\,yz$$

$$\begin{cases} x^2+4y^2+16z^2=4 \\ x+by+cz=0 \\ x^2+y^2+z^2=r^2 \end{cases}$$

~~$\left[(b^2+4)\left(\frac{4-r^2}{3}\right)-4\right]z^2=\ldots$~~

$$\underline{(by+cz)^2+y^2+z^2=cte}$$

$$A=(b^2+4)\left(\frac{4-r^2}{3}\right)-4$$

$$B=(c^2-5b^2-4)$$

$$(A+Bz^2)^2=4b^2c^2\left(\frac{4-r^2}{3}-5z^2\right)z^2 \quad \forall z$$

→ $A=0$

$$2AB=4b^2c^2\left(\frac{4-r^2}{3}\right)$$

$B^2=-20b^2c^2$???

$\{\sqrt{2}\}^2 = \sqrt{2} - 1$

$2\sqrt{2} = 2{,}828\ldots$

$2 \times (2\sqrt{2} - 2)$

$\sqrt{2} \simeq \frac{P}{9}$

$n\left(\sqrt{2n^2} - \sqrt{k^2}\right) = f(n)$

$f(n)^2 = n^2(2n^2 + k^2)$

$2n^2 - k^2 = 1$

1	1
5	7

$n = 3 \to 3(\sqrt{18} - 4) = 9\sqrt{2} - 12$

$n = 5 \to 5(\sqrt{50} - 7) = 25\sqrt{2} - 35$

$12 \to -1$

$16\sqrt{2} - 23$

$512 \quad 529 \quad < 0$

$n = 2 \to 4\sqrt{2} - 5$

$8\sqrt{2} - 10$

$n\left(\sqrt{2n^2} - \sqrt{2n^2 - 1}\right)$

$= n \cdot \frac{n}{\sqrt{2n^2} + \sqrt{2n^2 - 1}}$

$n \to +\infty$

$\to \frac{1}{\sqrt{2} + \sqrt{2}} = \frac{1}{2\sqrt{2}}$

$\frac{7}{5} = 1 + \frac{2}{5} = 1 + \frac{1}{2 + \frac{1}{2}}$

$\frac{1}{1} \quad \frac{3}{2} \quad \frac{7}{5} \quad \frac{17}{12} \quad \frac{41}{29}$

$1 + \frac{1}{2 + \frac{1}{2 + \frac{1}{2}}}$

$\frac{5}{12} \quad \frac{17}{12}$

$29\sqrt{2} - 41 \to (29\sqrt{2} - 35)$

$841 \quad 1682$

$1681 \quad 3362$

$-(25\sqrt{2} - 35)$

$816\sqrt{2} - 1154 < 0$

$41 \times 29 = 1189$

$816 \times 816 = 665856$

$\times 2 = 1331712$

$1154 \times 1154 = 1331716$