

⑤

347 1000102

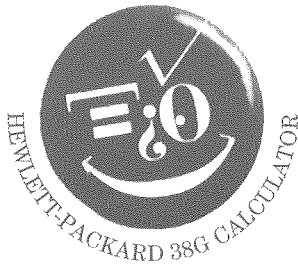
34 33 32 16 8 4 3 2

34 33 32 16 8 4 3 2

⑥

$12 \times 12 \text{ cm}^2$

$2 \times 3 = 6$



7

km 0: 50

km 40: 25

km 80: 12 + 1 œuf porte

km 120: 26

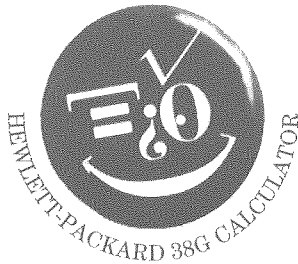
$$50 / 4 \rightarrow 12$$

km 0: 50

km 40: 17 + 16 œufs portes

km 80: ~~11~~ + ~~10~~ œufs portes
11

km 120: 11



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8

$$3x + 270 = 396$$

$$120 + x \quad 2x + 150$$

$$70 \quad 50 + x \quad x + 100$$

$$20 \quad 50 \quad x \quad 100$$

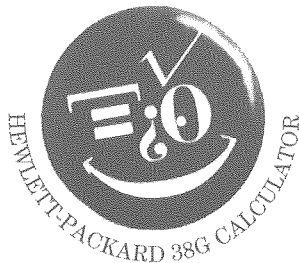
$$x = 132 - 90 = \boxed{42}$$

$$396$$

$$162 \quad 234$$

$$70 \quad 92 \quad 142$$

$$20 \quad 50 \quad 42 \quad 100$$



(17) ~~(8)~~

$$(100x + 10y + z) / (x + y + z) \quad x \neq 0$$

$$100x + 10y + z = 10(x + y + z) + r$$

$$90x - 9z = r \quad 0 \leq r < x + y + z$$

$$9(10x - z) = r \geq 0 \quad r < 27$$

$$\begin{aligned} \rightarrow 10x - z &= 0, 1 \text{ ou } 2 & \rightarrow x &= 1 \\ & & \rightarrow z &= 8 \text{ ou } 9 \end{aligned}$$

• $x = 1$ et $z = 8 \rightarrow r = 18 < 9 + y$ imp.

• $x = 1$ et $z = 9 \rightarrow r = 9 < 10 + y$

10 sol^o: 109, 119, 129 ... 199

$$198 / 18 = 11$$



Fantel: ~~14~~ 13 j.

Turnh: 16 j.

13₁₂

$1 + 13 \times 11 = 144$
143

Fantel

Turnh

3/11/01

- 15/11/01

- 16/11/01

01/12/01

29/11/01

17/12/01

12/12/01

02/01/02

25/12/01

18/01/02

7/01/02

03/02/02

20/01/02

19/02/02

02/02/02

07/03/02

15/02/02

23/03/02

28/02/02

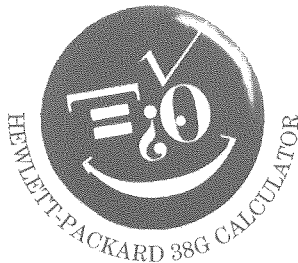
08/04/02

13/03/02

26/03/02

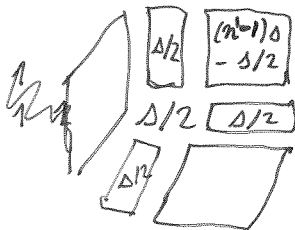
08/04/02

21/04/02



Somme Δ

" totale = $n^2 \Delta$



$$\frac{n^2 \Delta}{2} = 3n\Delta + \frac{\Delta}{2}$$

$$n^2 = 6n + 1$$

$$\frac{n^2}{2} = 3n - 3 + \frac{1}{2}$$

$$n^2 - 6n - 1 = 0$$

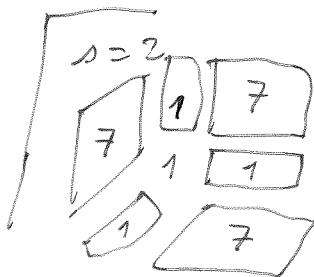
$$n = +3 \pm \sqrt{10}$$

$$n^2 = 6n - 5$$

$$n^2 - 6n + 5 = 0$$

$n = 1$
(imp)

ou $n = 5$



$\rightarrow 25 = 50/2$



~~abc~~ a b c

$$(a+1)(b+1)(c+1) = abc + 82$$

$$||$$
$$abc + ab + ac + bc + a + b + c + 1$$

$$ab + bc + ac + a + b + c = 81$$

$$\rightarrow a, b, c \geq 1$$

$$2ab + 2bc + 2ac + 4a + 4b + 4c = 192$$

$$ab + bc + ac + 2a + 2b + 2c = 96$$

$$\rightarrow a + b + c = 15$$

$$ab + bc + ac = 66$$

$$c = \frac{66 - ab}{a + b}$$

~~(a+b+c)^2~~

$$(a+b+c)^2 = a^2 + b^2 + c^2 + 132$$

$$||$$
$$225 \rightarrow a^2 + b^2 + c^2 = \underline{93}$$

- 1
- 4
- 9
- 16
- 25
- 36
- 49
- 64
- 81



822

$$64 + 25 + 4 = 93$$

$$8 + 5 + 2 = 15 \text{ OK}$$

484

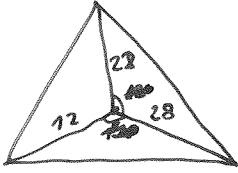
$$36 + 36 +$$

$$25 + \text{---}$$

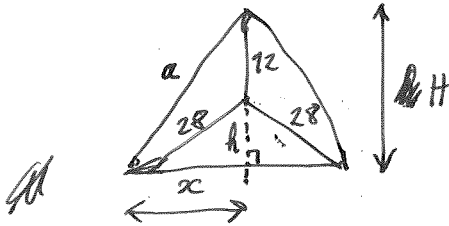
\rightarrow 1 sol^o: 2, 5, 8

- $P_0 = 80$
- $P_1 = 162$
- $P_2 = 280$

15



$$\begin{array}{r}
 28 \\
 \times 28 \\
 \hline
 784 \\
 + 144 \\
 \hline
 928
 \end{array}$$



$$x^2 + h^2 = 28^2$$

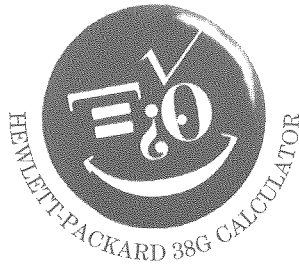
$$\rightarrow x = \sqrt{28^2 - h^2}$$

$$a^2 = x^2 + (h + 12)^2$$

$$= 28^2 - h^2 + (h + 12)^2$$

$$a = \sqrt{928 + 24h}$$

$$p = 2a + 2x = 2(\sqrt{928 + 24h} + \sqrt{784 - h^2})$$



(15)²

$$\frac{124}{\sqrt{928+24h}} = \frac{2h}{\sqrt{784-h^2}}$$

$$12\sqrt{784-h^2} = h\sqrt{928+24h}$$

$$144(784-h^2) = h^2(928+24h)$$

$$36(784-h^2) = h^2(232+6h)$$

$$18(784-h^2) = h^2(116+3h)$$

$$3h^3 + 134h^2 - 18 \times 784 = 0$$

test $h=14?$ (28/2) [th. 3×120]

$$h^2(3h+134) - 18 \times 784 = 0$$

$2 \times 3^2 \times 28^2$

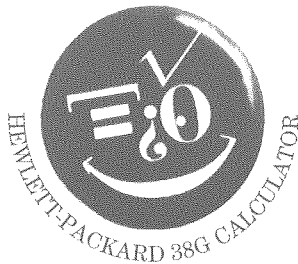
~~$3 \times 14 + 134 = 176$~~ h non entier of mult de 3

$h=12?$

$$3h + 134 = 170$$

$h=6?$

$$36 \times 152$$



(15)³

~~h~~ $h = a + b\sqrt{2}$

$$h = p/q$$

$$3p^3 + 134p^2q - 18 \times 784q^3 = 0$$

~~2~~ $4|p$

$$p = 4k$$

$$2^6 3k + 67 \times 2^5 k^2 q - 2^6 9 \times 9 \times 7^2 q^3 = 0$$

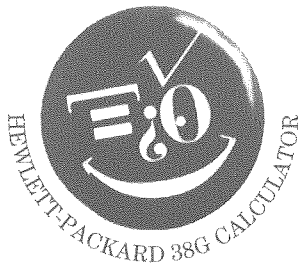
$$6k + 67k^2 q - 2 \times 3^4 \times 7^2 q^3 = 0$$

~~h~~ $k = 7^2 l \rightarrow p = 14^2 l$

$$6l + 67 \times 7^2 l^2 q - 2 \times 3^4 q^3 = 0$$

$$q|6, l|2 \times 3^4$$

96?



(16)

$$t = 22 \cos \alpha$$

$$x = 22 \sin \alpha$$

$$h = 27 - 22 \cos \alpha$$

$$\sqrt{1213 - 54 \times 22 \cos \alpha} + \sqrt{2509 - 72 \times 22 \sin \alpha - 54 \times 22 \cos \alpha}$$

$$\frac{54 \times 22 \sin \alpha}{\sqrt{1213 - \dots}} + \frac{-72 \times 22 \cos \alpha + 54 \times 22 \sin \alpha}{\sqrt{2509 - \dots}} = 0$$

$$\gamma_1 = 90 - (180 - (\alpha + 90 + \beta)) = \alpha + \beta$$

$$\gamma_2 = \beta + \alpha$$

$$\rightarrow x = 18$$

$$h' = \sqrt{22^2 - 18^2} = \sqrt{484 - 324} = \sqrt{160}$$

$$= 2\sqrt{40} = 4\sqrt{10}$$



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