

## CALCULATORS

⑤

A: 10h15 → 7h15  
R: 4h15

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⑥

7 1 5 10 2 9 3 6 8 4

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⑦

$$2000 = 1024 + 512 + 256 + 128 + 64 + 16$$

$$2048 - 64 = 2000 - 16$$

$$111.1101.0000 \rightarrow 222.2202.0000$$

⑧

$$ACZ = 6c$$

$$CYH = 10c$$

$$HME = 10c$$

$$AZYX = 10c$$

$$XMV = 5c$$

$$AVU = 12c$$

$$VUE = 9c$$

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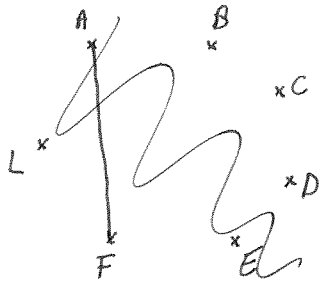
$$62c$$

$$1c = (20m)^2 = 400 \text{ dam}^2$$

$$\rightarrow 248 \text{ dam}^2$$

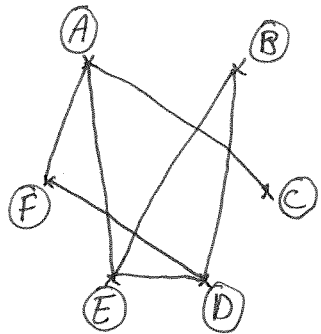
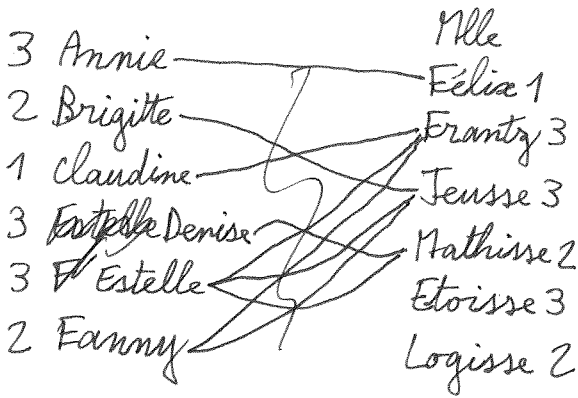
# CALCULATORS

(3)



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 ↳ A, B, D ⇒ Brigitte Mathisse  
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# CALCULATORS

(10)

*NR*

6 15  
9 12

9 18 24 304  
3 6 48 232  
1 2 56 104

9 18 24 72  
3 6 48 144  
1 2 200 392

3 6 21 21  
3 15 88 44  
1 2 44 61

24  
50  
58

9 18 24 72  
3 6 48 144  
1 2 336 192

21  
61  
17

a x  
b y  
c z

9 18 24 74  
3 6 50 148  
1 2 58 188

$a+b$   
 $b+cz$

404 192

240  
108

$a+b$   
 $b+c$   
 $2a+2b+c$   
 $2a+3b+2c$   
 $48+150+116$   
 $= 314$

206 404

159 134 64

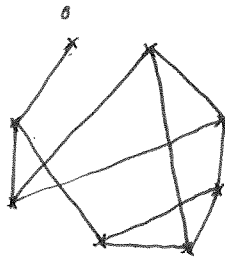
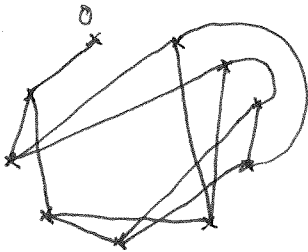
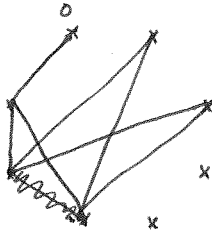
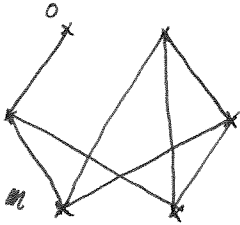
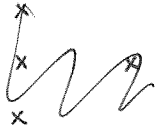
3 6 16 408  
1 2 8 24

# CALCULATORS

(11)

$n$

$$(n-1) \times 3 + 1 = 3n - 2 \Rightarrow n \text{ pair}$$



3 sol: 6, 8, 10

12

$$\begin{matrix} a \\ c \\ d \\ b \end{matrix} \quad \begin{matrix} a+b = c+d \\ ab = \frac{1}{2} cd \end{matrix}$$

$$\begin{cases} a+b = c+d \\ cd = 2ab \end{cases}$$

$$a=c \Rightarrow b=d \text{ imp.}$$

$$2a(c+d) - a^2 = cd$$

~~a = 18~~  
~~a = 16~~

~~a = 19 \Rightarrow c = 19~~

$$cd - 2a(c+d) + 2a^2 = 0$$

$$\rightarrow c = \frac{2a^2 - 2ad}{2a - d}$$

• a = 18

• a = 16

• a = 15

• a = 14

$$c = \frac{2a(a-d)}{2a-d}$$

$$a = 18 \Rightarrow c = \frac{36(18-d)}{36-d}$$

18, 12, 9, 3

~~d = 16 \Rightarrow c = 12~~  
d = 9 \Rightarrow c = 12

$$a = 16 \Rightarrow c = \frac{32(16-d)}{32-d}$$

~~d = 14~~

$$a = 15 \Rightarrow c = \frac{30(15-d)}{30-d}$$

d = 5 \Rightarrow c = 12, b = 2

15, 12, 5, 2

# CALCULATORS

12 suite

$$\bullet a = 14 \rightarrow c = \frac{28(14-d)}{28-d}$$

$d = 7$  non

$$\bullet a = 12 \rightarrow c = \frac{24(12-d)}{24-d}$$

$$d = 6 \rightarrow c = \frac{24 \times 6}{18} = 8$$

12, 8, 6, 2

$$\bullet a = 10 \rightarrow d = 5 \quad c = \frac{20(10-d)}{20-d} \quad \text{non}$$

$$\bullet a = 9 \rightarrow c = \frac{18(9-d)}{18-d}$$

$$\bullet a = 8 \rightarrow \text{non}$$

$$\bullet a = 6 : \text{ 6 4, 3, 1$$

$$\bullet a = 4 \rightarrow c = \frac{8(4-d)}{8-d}$$

4 sol<sup>o</sup> : 6, 12, 15, 18

(13)

Avec  $a, b, c$ 

$$\begin{cases} a + 3b + 7c = 29 \\ a + 4b + 10c = 38 \end{cases} \Rightarrow b + 3c = 9$$

$$c = 1 \rightarrow b = 6 \quad a = 4 \quad S = 11$$

$$c = 2 \rightarrow b = 3 \quad a = 6 \quad S = 11$$

 $\rightarrow 5,50F$



# CALCULATORS

15

$$57a + 62b + 72c = 4$$

a pair.  $b \equiv 2 [3]$

~~$$72c + 57a \equiv 4 [12]$$~~

$$|a| \leq 10$$

$$|b| \leq 9$$

$$|c| \leq 8$$

$$114x + 186y + 72z = 66$$

$$19x + 31y + 12z = 11$$

$$\begin{cases} a = 2x \\ b = 3y - 1 \end{cases}$$

$$|x| \leq 5, |y| \leq 3, |z| \leq 8$$

~~$$29x + 12z \equiv 11 [31]$$~~

(0, 11) ~~mon~~

(1, 4)

(2, )

(3, )

(4, )

(5, )

(-1, )

(-2, )

(-3, )

(-4, )

(-5, )

~~$$29x + 31y \equiv 11 [12]$$~~

~~$$(2, 0) \downarrow$$~~

~~$$5x - 5y \equiv 11 [12]$$~~

~~$$x - y \equiv 55 [12]$$~~

~~$$x - y \equiv 7 [12]$$~~

(5, -2)

(4, -3)

(-2, 3)

(-3, 42)

(-4, 1) (-5, 0)

15 suite

$$29 \times 5 - 31 \times 2 + 12z = 11$$

$$145 - 62 + 12z = 11$$

$$12z = -72 \quad z = -6$$

$$(5, -2, -6)$$

$$(4, -3, -1)$$

$$(-2, 3, ~~2~~ -2)$$

$$(-3, 2, 3)$$

$$~~93 - 58 = 35~~$$

$$(-4, 1, 8)$$

$$+ (-1, -1, 5)$$

$$62 \times 7 = 434$$

$$72 \times 6 =$$

$$(a, b, c): (10, -7, -6) \rightarrow 570F$$

$$(8, -10, -1) \rightarrow$$

$$(-4, 8, -2)$$

$$(-6, 5, 3)$$

$$(-8, 2, 8)$$

# CALCULATORS

15 suite

$$19z + 31y + 12z = 11$$

$$7x + 7y = 11 \quad [12]$$

$$x + y = 5 \quad [12]$$

$+12 \downarrow$	$(5, 0)$	$7$	$-7$	$]$	$\frac{11}{7}$
	$(4, 1)$		$-8$		$-\frac{11}{7}$
	$(3, 2)$		$-9$		
	$(2, 3)$		$-10$		
	$(-4, -3)$		$15$		
	$(-5, -2)$		$14$		

$$-3 - 4$$

$$-4 - 3$$

$$93 + 38 = \del{131} 131$$

$$-(76 + 93) = -169$$

$$169 + 11 = 180$$

$(a, b, c):$	$(10, -1, -7):$	$570F$	$] 2 \text{ sol}^{\circ}$
	$(8, 2, -8):$	$580F$	

$$\begin{array}{r} 72 \times 7 = 504 \\ \quad \underline{62} \\ 566 \end{array}$$

$$\begin{array}{r} 57 \times 8 = 456 \\ \quad \underline{62 \times 2 = 124} \\ 580 \end{array}$$

$$72 \times 8 = 576$$

# CALCULATORS

16

~~13~~

16 11 6

$$12 \times 10 \times 8 \times 6 \times 4 \times 2$$

13: 12 pow. uu

$$\begin{matrix} 416: 5 \\ 614: 5 \end{matrix} \rightarrow 10 \text{ pow } 416$$

$$315 / (2 \times 4 \times 6 \times 8 \times 12)$$

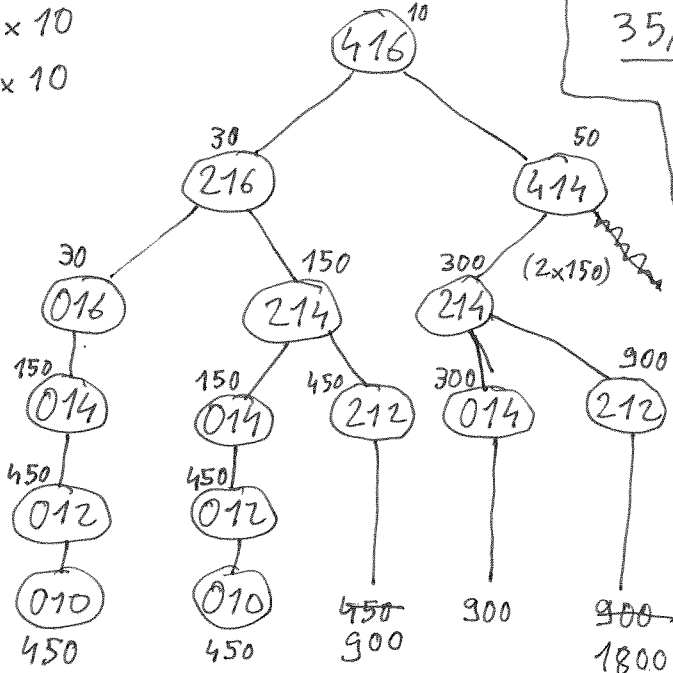
$$35 / (2 \times 4 \times 2 \times 8 \times 4)$$

$$\underline{35/512}$$

$$216: 3 \times 10$$

$$414: 5 \times 10$$

~~13~~



5 3150

→ 4500