Testul 6

1. a) $18 \vdots 2$

   b) $503 \not\vdots 10$

   c) $9 \mid 819$

   d) $10 \mid 2010$

2. $x = ?$

   $18 : (2x-1)$

   $D_{18} = \{1, 2, 3, 6, 9, 18\}$

   $2x-1 = 1 \Rightarrow 2x = 2 \Rightarrow x = 2:2 \Rightarrow x = 1$

   $2x-1 = 2 \Rightarrow 2x = 3 \Rightarrow x = 3:2$ imposibil

   $2x-1 = 3 \Rightarrow 2x = 4 \Rightarrow x = 4:2 \Rightarrow x = 2$

   $2x-1 = 6 \Rightarrow 2x = 7 \Rightarrow x = 7:2$ imposibil

   $2x-1 = 9 \Rightarrow 2x = 10 \Rightarrow x = 5$

   $2x-1 = 18 \Rightarrow 2x = 19 \Rightarrow x = 19:2$ imposibil

   $x = \{1, 2, 5\}$

3. $M_4 = \{0; 4; 8; 12; 16; 20; 24; 28; 32; 36; 40; 44; 48; 52; 56; 60; \dots\}$

   $M_4 : 4$

   $M_4 \not\vdots 10$

   $8 < M_4 < 60$

   $\Rightarrow$ nr. sunt: 12; 16; 24; 28; 32; 36; 44; 48; 52; 56.

4. a) $6m = 2 \cdot 3m : 2$

   $(2m+7) \not\vdots 2$

   $104m + 10 = 2 \cdot (52m + 5) : 2$

   $32m + 9 \not\vdots 2$

   $4m + 1 \not\vdots 2$

   Nr. pare: $6m$; $104m + 10$

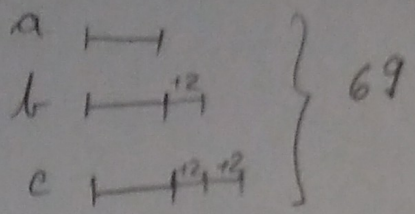
b) a, b, c - impare

$b = a + 2$

$c = b + 2 = a + 2 + 2 = a + 4$

$a + b + c = 69$

$a, b, c = ?$



$69 - (2+2+2) = 69 - 6 = 63$ (3 segmente egale)

$63 : 3 = 21$ (a)

$21 + 2 = 23$ (b)

$23 + 2 = 25$ (c)

5. $\overline{15aa}$ impare

$a = \{1, 3, 5, 7, 9\}$ => sunt 5 numere

6. a) $(1 + 4 + 4^2 + 4^3 + 4^4 + 4^5) : 5$

$\underbrace{1+4}_{5} + 4^2 + 4^3 + 4^4 + 4^5 = 5 + 4^2 \cdot (1+4) + 4^4 \cdot (1+4) = 5 + 4^2 \cdot 5 + 4^4 \cdot 5 =$

$= 5 \cdot (1 + 4^2 + 4^4) : 5 \Rightarrow (1 + 4 + 4^2 + 4^3 + 4^4 + 4^5) : 5$

b) $a, b = ?$

$11a + 4b - 42 = 0 \Rightarrow 11a + 4b = 42$

$4b : 2$

$42 : 2$

$\Rightarrow 11a : 2 \Rightarrow a = 2$

Pt. $a = 2 \Rightarrow 11 \cdot 2 + 4b = 42 \Rightarrow 4b = 42 - 22 \Rightarrow 4b = 20 \Rightarrow b = 5$

$\Rightarrow a = 2$ și $b = 5$