

1. 9 kg . 2 kg ?
 200 g . 200 g ,
:
 9 kg

$$\frac{9+0,2}{2} = 4,6\text{ kg}$$

$$4,4\text{ kg}$$

$$4,6\text{ kg}$$

$$\frac{4,6+0,2}{2} = 2,4\text{ kg}$$

$$2,2\text{ kg}$$

$$2,2\text{ kg}$$

$$0,2\text{ kg}$$

$$2\text{ kg}$$

2. 1 g . 1 kg
?
 2 g . 3 . 10 . 1 g .
 1 g
 4 ,

3
 $8, 16, 32$, 6 63
 62 ,
 63 ,
 $1 g$ 62 . ,
 125 . 1000
 $, \dots 1$. 1000
 10 1000 ,
 $63 + 64 = 127$, $127 + 128 = 255$,
 $255 + 256 = 511$.

3. 13 .
 ,
 .
 ?

.
 ,
 2. ,
 $2n$, n
 ,
 n .
 . 10
 ,
 ,

4. 50 3 -
 $374 kg, \dots, 466 kg, 468 kg$.
 $: 370 kg, 372 kg,$

50 ,
 7 ($3016 kg$
 3) . , 8 ,
 6 $3000 kg$,

6 2778 kg .
 7 14 3000 kg ,
 14
 2730 kg . , 14 -
 , 7, 6 -
 36 , 6 .

5. 7,5
 50 :
 925 kg, 930 kg, 935 kg, ..., 1165 kg, 1170 kg .
 .
 7500 , 7
 50 . 8
 : 6 -
 7500 ,
 6945 . ,
 7 14
 7500 . , 7
 14 , 6 6
 36 .

6. 10 ,
 .
 3 -
 ?
 . 4 3
 . , 13
 , $\frac{10}{13}$.
 .
 ,
 2 ,
 (, ,
).
 10 .

7. 1 g, 2 g, 3 g, ..., 100 g, 101 g ,

19 g .
 50
 ?
 . . 18 20 -
 , 17 21 .
 $18 + 20 = 17 + 21 = 38$.
 (1,16), (2,15), ..., (8,9)
 (22,101), (23,100), (24,99), ..., (61,62) . -
 , 4
 20 ,
 , $2 + 2 \cdot 4 + 2 \cdot 20 = 50$
 $: 38 + 4 \cdot 17 + 20 \cdot 123 = 2566 \text{ g}$.

8. : $1^2 \text{ gr}, 2^2 \text{ gr}, 3^2 \text{ gr}, \dots, 81^2 \text{ gr}$ -
 27
 ?

. () $n^2, (n+1)^2, \dots, (n+8)^2$
 , 18 g
 () .

$$n^2 + (n+5)^2 + (n+7)^2 = (n+1)^2 + (n+3)^2 + (n+8)^2$$

$$= (n+2)^2 + (n+4)^2 + (n+6)^2 + 18.$$

27 n^2 $(n+26)^2$
 3 9 :
 A: $n^2, (n+5)^2, (n+7)^2, (n+11)^2, (n+13)^2,$
 $(n+15)^2, (n+18)^2, (n+23)^2, (n+25)^2;$
 B: $(n+1)^2, (n+3)^2, (n+8)^2, (n+9)^2, (n+14)^2,$
 $(n+16)^2, (n+20)^2, (n+22)^2, (n+24)^2;$
 C: $(n+2)^2, (n+4)^2, (n+6)^2, (n+10)^2, (n+12)^2,$
 $(n+17)^2, (n+19)^2, (n+21)^2, (n+26)^2.$

$n = 27k$. $n = 81 \quad k = 3$.

9. 2009 .

$m_1, m_2, \dots, m_{2009}$.
 $m_1 \leq m_2 \leq m_3 \leq \dots \leq m_{2008} \leq m_{2009}$.

$$M_1 = m_1 + m_3 + m_5 + \dots + m_{2007} \leq m_2 + m_4 + m_6 + \dots + m_{2008} = M_2 ,$$

$$M_1 + m_{2009} = m_1 + m_3 + \dots + m_{2007} + m_{2009} > m_2 + m_4 + \dots + m_{2008} = M_2 .$$

, $M_1 \leq M_2$ $M_1 + m_{2009} > M_2$.

$$M_1 + x = M_2 + m_{2009} - x , \quad x = \frac{M_2 + m_{2009} - M_1}{2} .$$

$$M_1 + \frac{M_2 + m_{2009} - M_1}{2} = \frac{M_2 + m_{2009} + M_1}{2}$$

1005 .

10.

100 . 10
 11 . 10
 11 ? 10 ,
 1 10.

$$1 + 2 + 3 + \dots + 10 = 55$$

$$55 \cdot 10 = 550 . , \quad 11 ,$$

$$560 . , \quad 550 , \quad 550 + x , \quad 1 \leq x \leq 10$$

x 11 -
 x .

11.

100

$100 \cdot \frac{99}{9} = 10 \cdot 100$
 $9 \cdot ? = 10 \cdot 100$
 $1 + 2 + 3 + \dots + 100 = 5050$
 $5050 \cdot 10 = 50500$
 $50500 - x = 50400$
 $1 \leq x \leq 100$

12. $2009 \cdot 1005 = 1004 \cdot 9,9$
 $1004 \cdot C = A \cdot B$
 $502 \cdot 10 = 502 \cdot 9,9$
 $251 \cdot 10 = 251 \cdot 9,9$

13. $2013 \cdot 50 = 1$
 (\dots)

- ?
- 1006.
14. 103
- A, B, C .
- $B < C$.
- $A > B \quad B = C$.
- B
- 34
- $A < B \quad B = C$,
- $B < C$
- 17
15. 185
- 7
- 23

23 ?

92 . , -

), , (,

46 . (-).

23 . ,

16. 63 7 -

?

31 .

3 3 -

3 (,

15 . -

15 1 . -

1 ,

7 , -

7 .