

Кроль 2-16

В-10

$$1) \quad \sqrt{52} = 7.21$$

$$\frac{17}{19} = 0.895$$

$$X_1 = \sqrt{52} \approx 7.211$$

$$X_2 = \frac{17}{19} \approx 0.8947$$

$$\Delta x_1 = |7.21 - 7.211| = 0.001 \leq 0.0012 = \Delta_{x_1}$$

$$\Delta x_2 = |0.895 - 0.8947| = 0.0003 \leq 0.0004 = \Delta_{x_2}$$

$$\delta_{x_1} = \frac{0.0012}{7.211} \approx 0.00017$$

$$\delta_{x_2} = \frac{0.0004}{0.895} \approx 0.00045$$

$$\delta_{x_1} < \delta_{x_2} \Rightarrow X_1 \text{ більш точне}$$

$$2) \quad a) \quad x = 13.537$$

$$\Delta x = 0.0041$$

$$13.537 = 1 \cdot 10^1 + 3 \cdot 10^0 + 5 \cdot 10^{-1} + 3 \cdot 10^{-2} + 7 \cdot 10^{-3}$$

n	
1	$0.0041 \leq 0.5 \cdot 10^{1-1+1}$
2	$0.0041 \leq 0.5 \cdot 10^{1-2+1}$
3	$0.0041 \leq 0.5 \cdot 10^{1-3+1}$
4	$0.0041 \leq 0.5 \cdot 10^{1-4+1}$
5	$0.0041 \not\leq 0.5 \cdot 10^{1-5+1}$

$$B-96: n=5$$

$$8) \quad x = 7.521$$

$$\delta_x = 0.12 \%$$

$$\Delta x = 7.521 \cdot 0.0012 = 0.0090252$$

n

$$1. \quad 0.0090252 \leq 1 \cdot 10^{0-1+1}$$

$$2. \quad 0.0090252 \leq 1 \cdot 10^{0-2+1}$$

$$3. \quad 0.0090252 \leq 1 \cdot 10^{0-3+1}$$

$$4. \quad 0.0090252 \not\leq 1 \cdot 10^{0-4+1}$$

$$\text{Answer: } n=4$$

9)

$$a) \quad 5.634$$

$$\Delta x = 0.005$$

$$\delta_x = \frac{0.005}{5.634} \approx 0.000887$$

$$b) \quad 0.0748$$

$$\Delta x = 0.0001$$

$$\delta = \frac{0.0001}{0.0748} \approx 0.00133$$

```
: import math
x1 = math.sqrt(52)
x2 = 17/19

x1a = 7.21
x2a = 0.895

dx1 = math.fabs(x1a - x1)
dx2 = math.fabs(x2a - x2)

gx1 = dx1/x1a
gx2 = dx2/x2a

if gx1 < gx2:
    print("X1 точніше")
elif gx1 > gx2:
    print("X1 точніше")
else:
    print("Обидва однаково точні")
```

X1 точніше