Rješenja zadataka 1.2

Zadatak 1. Odredi glavnu mjeru kuta α ako je njegova mjera u radijanima jednaka:

1) $\frac{55\pi}{8}$; **2)** $-\frac{113\pi}{12}$; **3)** $\frac{1234\pi}{3}$;

4) -33; **5)** $\frac{531\pi}{4}$; **6)** 1000.

Rješenje.

1) $\alpha = \frac{55\pi}{8}$

$$\alpha' = \alpha - \left\lfloor \frac{\alpha}{2\pi} \right\rfloor \cdot 2\pi$$

$$\alpha' = \frac{55\pi}{8} - \left\lfloor \frac{\frac{55\pi}{8}}{2\pi} \right\rfloor \cdot 2\pi$$

$$\alpha' = \frac{55\pi}{8} - \left\lfloor \frac{55\pi}{16\pi} \right\rfloor \cdot 2\pi$$

$$\alpha' = \frac{55\pi}{8} - \lfloor 3.4 \rfloor \cdot 2\pi$$

$$\alpha' = \frac{55\pi}{8} - 3 \cdot 2\pi$$

$$\alpha' = \frac{55\pi}{8} - 6\pi$$

$$\alpha' = \frac{55\pi - 48\pi}{8}$$

$$\alpha' = \frac{7\pi}{8};$$

2) $\alpha = -\frac{113\pi}{12}$

$$\alpha' = \alpha - \left\lfloor \frac{\alpha}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = -\frac{113\pi}{12} - \left\lfloor \frac{-\frac{113\pi}{12}}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = -\frac{113\pi}{12} - \left\lfloor -\frac{113\pi}{24\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = -\frac{113\pi}{12} - \lfloor -4.7 \rfloor \cdot 2\pi$$
$$\alpha' = -\frac{113\pi}{12} - (-5) \cdot 2\pi$$
$$\alpha' = -\frac{113\pi}{12} + 10\pi$$
$$\alpha' = \frac{-113\pi + 120\pi}{12}$$
$$\alpha' = \frac{7\pi}{12};$$

3) $\alpha = \frac{1234\pi}{3}$

$$\alpha' = \alpha - \left\lfloor \frac{\alpha}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = \frac{1234\pi}{3} - \left\lfloor \frac{\frac{1234\pi}{3}}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = \frac{1234\pi}{3} - \left\lfloor \frac{1234\pi}{6\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = \frac{1234\pi}{3} - \lfloor 205.67 \rfloor \cdot 2\pi$$
$$\alpha' = \frac{1234\pi}{3} - 205 \cdot 2\pi$$
$$\alpha' = \frac{1234\pi}{3} - 410\pi$$
$$\alpha' = \frac{1234\pi - 1230\pi}{3}$$
$$\alpha' = \frac{4\pi}{3};$$

4) $\alpha = -33$

$$\alpha' = \alpha - \left\lfloor \frac{\alpha}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = -33 - \left\lfloor \frac{-33}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = -33 - \lfloor -5.25 \rfloor \cdot 2\pi$$
$$\alpha' = -33 - (-6) \cdot 2\pi$$
$$\alpha' = -33 + 12\pi$$
$$\alpha' = 4.699;$$

5) $\alpha = \dfrac{531\pi}{4}$

$$\alpha' = \alpha - \left\lfloor \frac{\alpha}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = \frac{531\pi}{4} - \left\lfloor \frac{\frac{531\pi}{4}}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = \frac{531\pi}{4} - \left\lfloor \frac{513\pi}{8\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = \frac{531\pi}{4} - \lfloor 66.3 \rfloor \cdot 2\pi$$
$$\alpha' = \frac{531\pi}{4} - 66 \cdot 2\pi$$
$$\alpha' = \frac{531\pi}{4} - 132\pi$$
$$\alpha' = \frac{531\pi - 528\pi}{4}$$
$$\alpha' = \frac{3\pi}{4};$$

6) $\alpha = 1000$

$$\alpha' = \alpha - \left\lfloor \frac{\alpha}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = 1000 - \left\lfloor \frac{1000}{2\pi} \right\rfloor \cdot 2\pi$$
$$\alpha' = 1000 - \lfloor 159.15 \rfloor \cdot 2\pi$$
$$\alpha' = 1000 - 159 \cdot 2\pi$$
$$\alpha' = 1000 - 318\pi$$
$$\alpha' = 0.9735;$$