Тригонометрические уравнения

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SINx=a (|a|≤1)

□ = (−1)□ □ a+ πk, kϵZ

Пример:

Sinx=1/2

Решение

□ = (−1)⁻¹ □ 1/2+ πk, kϵZ

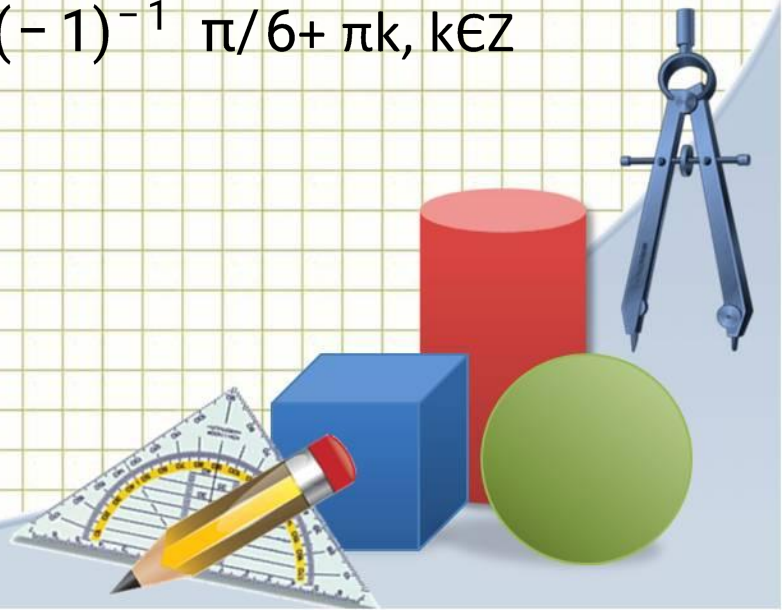
□ = (−1)⁻¹ π/6+ πk, kϵZ

Частные случаи

$\sin x = 0 \Rightarrow x = \pi k, \quad k \in Z,$

$\sin x = 1 \Rightarrow x = \pi/2 + 2\pi k, \quad k \in Z,$

$\sin x = -1 \Rightarrow x = -\pi/2 + 2\pi k, \quad k \in Z.$



COSx=a (|a|≤1)

$$x = \pm arccos\, a + 2\pi k, k \in Z$$

Частные случаи

$\cos x = 0 \Rightarrow x = \pi/2 + \pi k,\ k \in Z,$

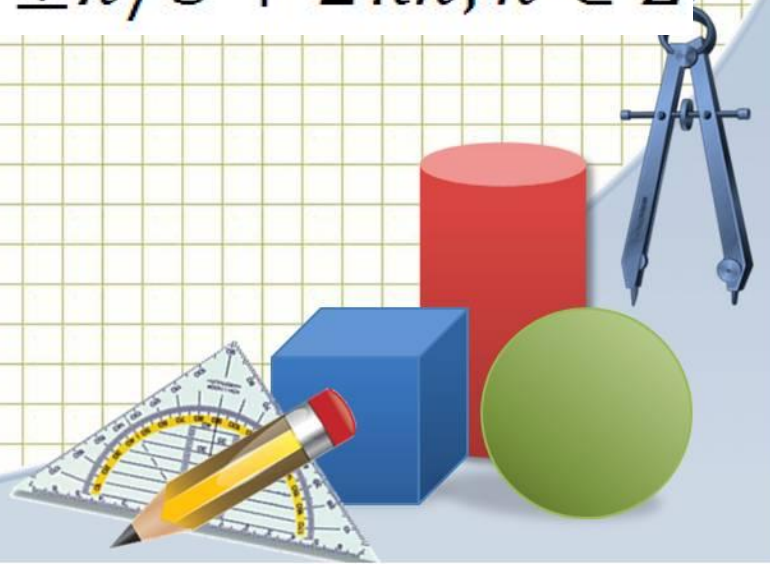
$\cos x = 1 \Rightarrow x = 2\pi k,\ k \in Z,$

$\cos x = -1 \Rightarrow x = \pi + 2\pi k,\ k \in Z.$

Решение

$$x = \pm arccos\, 1/2 + 2\pi k, k \in Z$$

$$x = \pm \pi/3 + 2\pi k, k \in Z$$



tgx=a

$$x = arctg\, a + \pi k, k \in Z$$

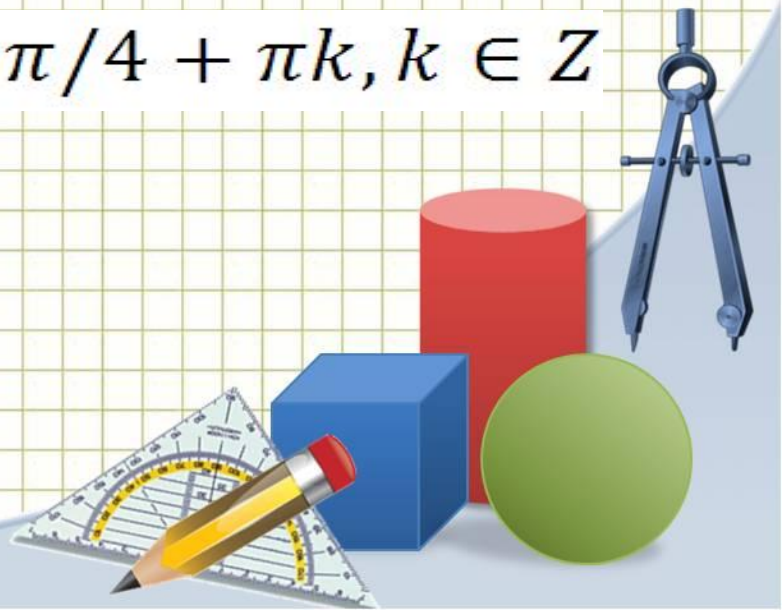
Пример:

tgx=1

Решение

$$x = arctg1 + \pi k, k \in Z$$

$$x = \pi/4 + \pi k, k \in Z$$



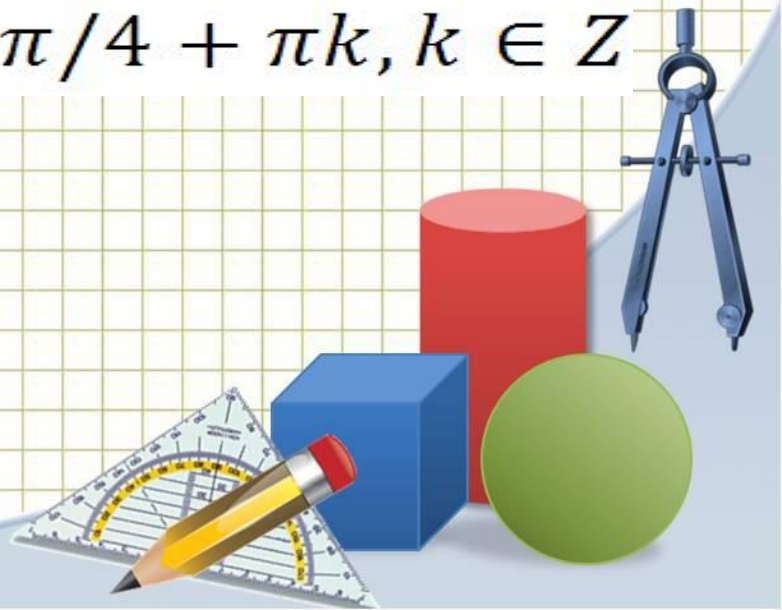
ctgx=a

$$x = arcctg\, a + \pi k, k \in Z$$

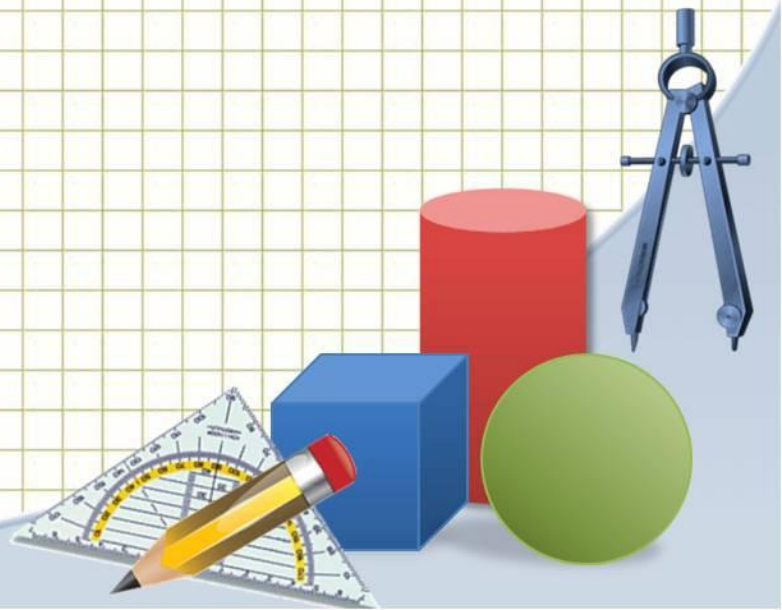
Решение

$$x = arcctg\, 1 + \pi k, k \in Z$$

$$x = \pi/4 + \pi k, k \in Z$$



Пример:
ctgx=1



Пример:

$COSx=1/2$