

Тригонометрические уравнения

$$\sin x = a$$

$a > 1$	$\sin x \neq 1, m.к. E(\sin) = [-1; 1]$
$a = 1$	$x = \frac{\pi}{2} + 2\pi n, n \in \mathbb{Z}$
$0 < a < 1$	$x = (-1)^n \arcsin a + \pi n, n \in \mathbb{Z}$
$a = 0$	$x = \pi n, n \in \mathbb{Z}$
$-1 < a < 0$	$x = (-1)^{n+1} \arcsin a + \pi n, n \in \mathbb{Z}$
$a = -1$	$x = -\frac{\pi}{2} + 2\pi n, n \in \mathbb{Z}$
$a < -1$	$\sin x \neq -1, m.к. E(\sin) = [-1; 1]$

$$\cos x = a$$

$a > 1$	$\cos x \neq 1, m.к. E(\cos) = [-1; 1]$
$a = 1$	$x = 2\pi n, n \in \mathbb{Z}$
$0 < a < 1$	$x = \pm \arccos a + 2\pi n, n \in \mathbb{Z}$
$a = 0$	$x = \frac{\pi}{2} + \pi n, n \in \mathbb{Z}$
$-1 < a < 0$	$x = \pm (\pi - \arccos a) + 2\pi n, n \in \mathbb{Z}$
$a = -1$	$x = \pi + 2\pi n, n \in \mathbb{Z}$
$a < -1$	$\cos x \neq -1, m.к. E(\cos) = [-1; 1]$

$$\boxed{tgx = a}$$

$a > 1$	$x = \arctga + \pi n, n \in \mathbb{Z}$
$a = 1$	$x = \frac{\pi}{4} + \pi n, n \in \mathbb{Z}$
$0 < a < 1$	$x = \arctga + \pi n, n \in \mathbb{Z}$
$a = 0$	$x = \pi n, n \in \mathbb{Z}$
$-1 < a < 0$	$x = -\arctg a + \pi n, n \in \mathbb{Z}$
$a = -1$	$x = -\frac{\pi}{4} + \pi n, n \in \mathbb{Z}$
$a < -1$	$x = -\arctg a + \pi n, n \in \mathbb{Z}$

$$\boxed{ctgx = a}$$

$a > 1$	$x = \text{arcctga} + \pi n, n \in \mathbb{Z}$
$a = 1$	$x = \frac{\pi}{4} + \pi n, n \in \mathbb{Z}$
$0 < a < 1$	$x = \text{arcctga} + \pi n, n \in \mathbb{Z}$
$a = 0$	$x = \frac{\pi}{2} + \pi n, n \in \mathbb{Z}$
$-1 < a < 0$	$x = (\pi - \text{arcctg} a) + \pi n, n \in \mathbb{Z}$
$a = -1$	$x = \frac{3\pi}{4} + \pi n, n \in \mathbb{Z}$
$a < -1$	$x = (\pi - \text{arcctg} a) + \pi n, n \in \mathbb{Z}$