

$$(\sin \alpha \cos a + \sin a) / \cos a(1 + \cos a) = \sin a (\cos a + \sin a) / \cos a (\cos a + \sin a) = \operatorname{tg} a$$

$$2) 1 - \sin^2 a = \cos^2 a, \quad 1 + \operatorname{ctg}^2 a = 1 / \sin^2 a$$

$$(1 - \sin^2 a)(1 + \operatorname{ctg}^2 a) = \cos^2 a / \sin^2 a = \operatorname{ctg}^2 a$$