Основное тригонометрическое тождество

$$\sin^2\alpha + \cos^2\alpha = 1$$

1. $\sin A = \frac{\sqrt{7}}{4}$ $\sin^2 A = \frac{7}{16}$

$\cos^2 A = 1 - \frac{7}{16} = \frac{9}{16}$ $\cos A = \frac{3}{4}$

2. $\cos A = \frac{2\sqrt{6}}{5}$ $\cos^2 A = \frac{24}{25}$

$\sin^2 A = 1 - \frac{24}{25} = \frac{1}{25}$ $\sin A = \frac{1}{5}$

3. $\cos A = \frac{3}{5} = \sin B$

$\cos A = \sin B$ $\sin B = \frac{3}{5}$

$\sin B = \cos A$

4. $\cos A = \frac{9}{41}$ $\cos^2 A = \frac{81}{1681}$

$\sin^2 A = 1 - \cos^2 A = 1 - \frac{81}{1681} = \frac{1600}{1681}$

$\sin A = \frac{40}{41}$

$tg A = \frac{\sin A}{\cos A} = \frac{40}{41} : \frac{9}{41} = \frac{40}{9}$

5. $tg A = \frac{\sqrt{6}}{12}$ $tg A = \frac{\sin A}{\cos A} = \frac{\sqrt{6}}{12}$

$\sin A = \frac{\sqrt{6}\cos A}{12}$

$\sin^2 A + \cos^2 A = 1$ $\frac{6\cos^2 A}{144} + \cos^2 A = 1$

$6\cos^2 A + 144\cos^2 A = 144$ $\cos^2 A = \frac{144}{150}$

$\cos A = \frac{12}{5\sqrt{6}}$

$\sin A = \frac{\sqrt{6}\cdot\cos A}{12} = \frac{\sqrt{6}\cdot 12}{5\sqrt{6}\,12} = \frac{1}{5}$