

$$\begin{aligned}
 10) \quad & \frac{\sin 18^\circ}{\cos 72^\circ} \\
 &= \frac{\cos(90^\circ - 18^\circ)}{\cos 72^\circ} \\
 &= \frac{\cos 72^\circ}{\cos 72^\circ} \\
 &= 1
 \end{aligned}$$

$$\begin{aligned}
 11) \quad & \frac{\tan 26^\circ}{\cot 64^\circ} \\
 &= \frac{\cot(90^\circ - 26^\circ)}{\cot 64^\circ} \\
 &= \frac{\cot 64^\circ}{\cot 64^\circ} \\
 &= 1
 \end{aligned}$$

$$\begin{aligned}
 12) \quad & \cos 48^\circ - \sin 42^\circ \\
 &= \sin(90^\circ - 48^\circ) - \sin 42^\circ \\
 &= \sin 42^\circ - \sin 42^\circ \\
 &= 0
 \end{aligned}$$

$$\begin{aligned}
 2) \quad & \text{LHS} \\
 1) \quad & \tan 48^\circ \tan 23^\circ \tan 42^\circ \tan 67^\circ \\
 &= \tan 48^\circ \tan 42^\circ \tan 23^\circ \tan 67^\circ \\
 &= \cot(90^\circ - 48^\circ) \tan 42^\circ \cot(90^\circ - 23^\circ) \tan 67^\circ \\
 &= \cot 42^\circ \tan 42^\circ \tan 67^\circ \cot 67^\circ \\
 &= 1 \\
 &= \text{RHS}
 \end{aligned}$$

[cot θ = 1/tan θ]

$$\begin{aligned}
 \text{LHS} \\
 2) \quad & \cos 38^\circ \cos 52^\circ - \sin 38^\circ \sin 52^\circ \\
 &= \sin(90^\circ - 38^\circ) \sin(90^\circ - 52^\circ) - \sin 38^\circ \sin 52^\circ \\
 &= \sin 52^\circ \sin 38^\circ - \sin 38^\circ \sin 52^\circ \\
 &= 0 \\
 &= \text{RHS}
 \end{aligned}$$

$$\begin{aligned}
 3) \quad & \tan 2A = \cot(A - 18^\circ) \\
 \Rightarrow & \cot(90^\circ - 2A) = \cot(A - 18^\circ) \\
 \Rightarrow & 90^\circ - 2A = A - 18^\circ \\
 \Rightarrow & -3A = -108 \\
 \Rightarrow & A = 36^\circ
 \end{aligned}$$

$$\begin{aligned}
 4) \quad & \tan A = \cot B \\
 \Rightarrow & \cot(90^\circ - A) = \cot B \\
 \Rightarrow & 90^\circ - A = B \\
 \Rightarrow & A + B = 90^\circ
 \end{aligned}$$

$$\begin{aligned}
 5) \quad & \sec 4A = \operatorname{cosec}(A - 20^\circ) \\
 \Rightarrow & \operatorname{cosec}(90^\circ - 4A) = \operatorname{cosec}(A - 20^\circ) \\
 \Rightarrow & 90^\circ - 4A = A - 20^\circ \\
 \Rightarrow & -5A = -110 \\
 \Rightarrow & A = 22^\circ
 \end{aligned}$$

$$\begin{aligned}
 6) \quad & A + B + C = 180^\circ \\
 \Rightarrow & B + C = 180^\circ - A \\
 \Rightarrow & \frac{B+C}{2} = 90^\circ - \frac{A}{2} \dots ① \\
 \text{LHS} &= \sin\left(\frac{B+C}{2}\right) \\
 &= \sin\left(90^\circ - \frac{A}{2}\right) \quad (\text{use } i) \\
 &= \cos \frac{A}{2} \\
 &= \text{RHS}
 \end{aligned}$$

$$\begin{aligned}
 7) \quad & \sin 67^\circ + \cos 75^\circ \\
 &= \cos(90^\circ - 67^\circ) + \sin(90^\circ - 75^\circ) \\
 &= \cos 23^\circ + \sin 15^\circ
 \end{aligned}$$