

13. Cont.

$$\begin{aligned}
 c) \quad \operatorname{tg}(x-y) &= \frac{\operatorname{tg} x - \operatorname{tg} y}{1 + \operatorname{tg} x \operatorname{tg} y} \\
 &= \frac{-\frac{12}{5} - \frac{4}{3}}{1 + \left(-\frac{12}{5}\right)\left(\frac{4}{3}\right)} \\
 &= \frac{-\frac{56}{15}}{1 - \frac{16}{5}} = \frac{-\frac{56}{15}}{-\frac{11}{5}} \\
 &= \frac{56}{15} \cdot \frac{5}{11} = \frac{56}{33}
 \end{aligned}$$

14.

$$\begin{aligned}
 a) \quad \sin 50^\circ \cos 20^\circ - \cos 50^\circ \sin 20^\circ &= \\
 &= \sin(50^\circ - 20^\circ) \\
 &= \sin 30^\circ = \frac{1}{2} //
 \end{aligned}$$

$$\begin{aligned}
 b) \quad \cos \frac{\pi}{7} \cos \frac{4\pi}{21} - \sin \frac{\pi}{7} \sin \frac{4\pi}{21} &= \\
 &= \cos\left(\frac{\pi}{7} + \frac{4\pi}{21}\right) \\
 &= \cos\left(\frac{7\pi}{21}\right) = \cos\left(\frac{\pi}{3}\right) = \frac{1}{2} //
 \end{aligned}$$

$$\begin{aligned}
 c) \quad \frac{\operatorname{tg} 7^\circ + \operatorname{tg} 8^\circ}{1 - \operatorname{tg} 7^\circ \operatorname{tg} 8^\circ} &= \operatorname{tg}(7^\circ + 8^\circ) \\
 &= \operatorname{tg} 15^\circ
 \end{aligned}$$

15.

(6)

$$\begin{aligned}
 \operatorname{tg} 15^\circ &= \operatorname{tg}(45^\circ - 30^\circ) \\
 &= \frac{\operatorname{tg} 45^\circ - \operatorname{tg} 30^\circ}{1 + \operatorname{tg} 45^\circ \operatorname{tg} 30^\circ} \\
 &= \frac{1 - \frac{1}{\sqrt{3}}}{1 + 1 \cdot \frac{1}{\sqrt{3}}} = \frac{\sqrt{3}-1}{\sqrt{3}+1}
 \end{aligned}$$

$$\operatorname{tg} 15^\circ = \frac{\sqrt{3}-1}{\sqrt{3}+1} //$$

$$\begin{aligned}
 d) \quad \sin \frac{5\pi}{36} \cos \frac{5\pi}{18} + \cos \frac{5\pi}{36} \sin \frac{5\pi}{18} &= \\
 &= \sin\left(\frac{5\pi}{36} + \frac{5\pi}{18}\right) \\
 &= \sin\left(\frac{15\pi}{36}\right) = \sin\left(\frac{5\pi}{12}\right) \\
 \frac{15\pi}{36} = 75^\circ &= \sin\left(\frac{\pi}{4} + \frac{\pi}{6}\right) \\
 &= \sin \frac{\pi}{4} \cos \frac{\pi}{6} + \sin \frac{\pi}{6} \cos \frac{\pi}{4} \\
 &= \frac{\sqrt{2}}{2} \cdot \frac{\sqrt{3}}{2} + \frac{1}{2} \cdot \frac{\sqrt{2}}{2} \\
 &= \frac{\sqrt{2}}{4} (1 + \sqrt{3}) //
 \end{aligned}$$