(17 - cont.)

$$1 - tg(x-y)\,tg\,y = 1 - \frac{tgx - tgy}{1 + tgx\,tgy} \cdot tg\,y$$

$$= \frac{1 + tgx\,tgy - (tgx - tgy)\,tgy}{1 + tgx\,tgy}$$

$$= \frac{1 + tgx\,tgy - tgx\,tgy + tg^2y}{1 + tgx\,tgy}$$

$$= \frac{1 + tg^2y}{1 + tgx\,tgy} = \frac{sec^2y}{1 + tgx\,tgy}$$

Then:

$$\frac{tg(x-y) + tg\,y}{1 - tg(x-y)\,tg\,y} = \frac{\dfrac{tgx\,sec^2y}{1 + tgx\,tgy}}{\dfrac{sec^2y}{1 + tgx\,tgy}}$$

$$= \frac{tgx\,sec^2y}{sec^2y} = tgx$$