

$$\left(\sec^2 \alpha + \frac{1}{\cos^2 \alpha} - 3(\cos^2 \alpha + \sec^2 \alpha) + 3\cos^2 \alpha \right) \cdot \frac{1}{\cos^2 \alpha} =$$

$$= \left(\sec^2 \alpha + \frac{1}{\cos^2 \alpha} - \cancel{3\cos^2 \alpha} - \cancel{3\sec^2 \alpha} + 3\cos^2 \alpha \right) \cdot \frac{1}{\cos^2 \alpha} =$$

$$= \left(-2\sec^2 \alpha + \frac{1}{\cos^2 \alpha} \right) \cdot \frac{1}{\cos^2 \alpha} =$$

$$= \left(-2(1 - \cos^2 \alpha) + \frac{1}{\cos^2 \alpha} \right) \cdot \frac{1}{\cos^2 \alpha} =$$

$$= \left(-2 + 2\cos^2 \alpha + \frac{1}{\cos^2 \alpha} \right) \frac{1}{\cos^2 \alpha} = *$$

$$= \left(\cancel{-2} + \frac{2}{\cancel{\cos^2 \alpha + 1}} + \cancel{\cos^2 \alpha + 1}^{-1} \right) (\cos^2 \alpha + 1) =$$

$$= \left(\frac{2}{\cos^2 \alpha + 1} + \cos^2 \alpha - 1 \right) (\cos^2 \alpha + 1) =$$

$$= 2 + \cos^4 \alpha - 1 =$$

$$= \cos^4 \alpha - 1$$

*
 $\frac{1}{\cos^2 \alpha} = \frac{\sec^2 \alpha + \cos^2 \alpha}{\cos^2 \alpha} = \cos^2 \alpha + 1$