Differential of y = (1+cos^2(3x))^2

Solution:

If your task is like in the statement, then

$$((1 + (\cos 3x)^2)^2)' = -12 \sin(3x) \cos(3x)(1 + (\cos 3x)^2)$$

But if in the statement there is an error and your task is $y = \sqrt{1 + (\cos 3x)^2}$, then

$$y' = \frac{(1 + (\cos 3x)^2)'}{2\sqrt{1 + (\cos 3x)^2}} = \frac{2 \cos 3x (\cos 3x)'}{2\sqrt{1 + (\cos 3x)^2}} = \frac{-3 \cos 3x \sin 3x}{\sqrt{1 + (\cos 3x)^2}}$$

And this answer is like in your answer key. So, possibly, there is an error in the statement.