Surface Area

Question

Which of the following integrals computes the area of the surface $z = x^2 - y^2$ lying inside the cylinder $x^2 + y^2 = 9$?

A. $\displaystyle\int_0^{2\pi} \int_0^3 r\sqrt{1 + 4r^2}\, dr\, d\theta$

B. $\displaystyle\int_0^{2\pi} \int_0^3 \sqrt{1 + 4r^2}\, dr\, d\theta$

C. $\displaystyle\int_0^{2\pi} \int_0^9 r\sqrt{1 + 4r^2}\, dr\, d\theta$

D. $\displaystyle\int_0^{2\pi} \int_0^9 \sqrt{1 + 4r^2}\, dr\, d\theta$