Compute the integral
\[ \int_{R} \int (y - 4x) \, dA \]
where \( R \) is the parallelogram with vertices \((0, 0), (2, -1), (3, 3), \) and \((1, 4)\).

A \( \frac{13}{4} \)
B \( \frac{21}{5} \)
C \( -\frac{81}{2} \)
D \( -\frac{175}{2} \)
E I got something different.
For the transformation \( T(r, \theta) = (r \cos(\theta), r \sin(\theta)) \), ...

\[
\det(J(r, \theta)) = \frac{\partial(x,y)}{\partial(r,\theta)} =
\]

A  1  
B  2  
C  \( r \)  
D  \( r^2 \)  
E  I got something different.
For the transformation $T(v, u) = (v, u(1 + v^2))$, ...

\[
\text{det}(J(u, v)) = \frac{\partial(x,y)}{\partial(u,v)} =
\]

A $-uv^2$

B $-(1 + v^2)$

C $uv$

D $u + v^2$

E I got something different.
Find a linear change of coordinates to compute the volume of the region $R$ bounded by the ellipsoid

$$x^2 + 4y^2 + 4z^2 = 1.$$ 

A $\frac{\pi}{2}$
B $\frac{\pi}{3}$
C $\frac{\pi^2}{3}$
D $\pi$
E I got something different.