Some useful information:

The Jacobian in spherical coordinates is $\rho^2 \sin \phi$

$$D = (f_{xx})(f_{yy}) - (f_{xy})^2$$

The following does not directly apply to any problem on the test, but it might give a hint on some problems.

$$dz = f_x(x_0, y_0)dx + f_y(x_0, y_0)dy$$

Length of curve traced when $a \le t \le b$: $\displaystyle\int_a^b (\text{ speed at } t)\, dt$

$$\frac{dy}{dx} = -\frac{F_x}{F_y}$$

$$\kappa(t) = \frac{\|\mathbf{T}'(t)\|}{\|\mathbf{r}'(t)\|} = \frac{\|\mathbf{r}'(t) \times \mathbf{r}''(t)\|}{\|\mathbf{r}'(t)\|^3}$$

$$\int u\, dv = uv - \int v\, du$$