

**12.6** TRIPLE INTEGRALS IN CYLINDRICAL COORDINATES

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**EXAMPLE A** Find an equation in cylindrical coordinates for the ellipsoid  $4x^2 + 4y^2 + z^2 = 1$ .

**SOLUTION** Since  $r^2 = x^2 + y^2$  from Equations 2, we have

$$z^2 = 1 - 4(x^2 + y^2) = 1 - 4r^2$$

So an equation of the ellipsoid in cylindrical coordinates is  $z^2 = 1 - 4r^2$ . ■