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3D Dimensional Change
Leave your answers in terms of $\pi$ and/or rounded to three decimal places.

1. Two similar cylinders have lateral areas $81 \pi \mathrm{~m}^{2}$ and $144 \pi \mathrm{~m}^{2}$. Find the ratios of:
a. the heights
b. the surface areas
c. the volumes
2. Two similar cones have radii of 4 cm and 6 cm . The surface area of the smaller cone is $36 \pi \mathrm{~cm}^{2}$. Find the surface area of the larger cone.
3. Two similar pyramids have lateral areas $8 \mathrm{ft}^{2}$ and $18 \mathrm{ft}^{2}$. The volume of the larger pyramid is $108 \mathrm{ft}^{3}$. Find the volume of the smaller pyramid.
4. What is the effect on the volume of a sphere if the diameter is doubled?
