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Question 15

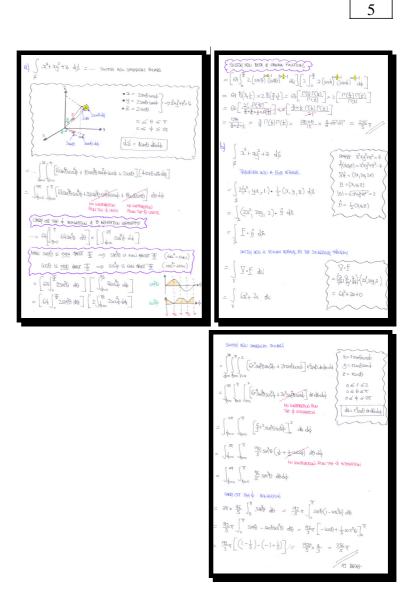
The surface S is the sphere with Cartesian equation

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

a) By using Spherical Polar coordinates, (r, θ, φ) , evaluate by direct integration the following surface integral

$$I = \bigoplus_{S} \left(x^4 + xy^2 + z \right) dS \,.$$

b) Verify the answer of part (**a**) by using the Divergence Theorem.



 256π

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