17.3

1. $div(F)=0$.

$\iiint_R 0\,dV=0$.

3. $div(F)=2$

$\int_0^2\int_{-1}^{1}\int_{-\sqrt{1-y^2}}^{\sqrt{1-y^2}} 2\,dx\,dy\,dz=4\pi$.

5. $div(F)=z^2$

$\int_{-1}^{1}\int_{-\sqrt{1-x^2}}^{\sqrt{1-x^2}}\int_{-\sqrt{1-x^2-y^2}}^{\sqrt{1-x^2-y^2}} z^2\,dz\,dy\,dx=\frac{4}{15}\pi$.

7. $div(F)=y^2+z^2+x^2$

$\int_0^3\int_{-2}^{2}\int_{-\sqrt{4-y^2}}^{\sqrt{4-y^2}}(x^2+y^2+z^2)\,dx\,dy\,dz=60\pi$

11. $div(F)=3x^2+3z^2$

$\int_0^2\int_0^{\sqrt{4-y^2}}\int_0^{\sqrt{4-y^2-z^2}}(3x^2+3z^2)\,dx\,dz\,dy=\frac{32}{5}\pi$

15. $div(F)=1+1+2=2$

$\int_{-3}^{3}\int_{-\sqrt{9-x^2}}^{\sqrt{9-x^2}}\int_0^{9-x^2-y^2} 2\,dz\,dy\,dx=81\pi$.