Changing Variables in Subsets of $\mathbb{R}^2$ and $\mathbb{R}^3$-HW Problems

Determine if the maps from $\mathbb{R}^2$ to $\mathbb{R}^2$ are one-to-one and/or onto.

1. $S(x, y) = (2x, 2y)$
2. $S(x, y) = (e^x, y^3)$
3. $T(x, y) = (x^3, y^3)$

Determine if the maps from $\mathbb{R}^3$ to $\mathbb{R}^3$are one-to-one and/or onto.

4. $T(x, y, z) = (2x, 4y, 6z)$
5. $S(x, y, z) = (2x, 4y, x)$
6. $S(x, y, z) = (e^z, e^x, e^y)$