Quiz 6 Roberto Campos

Show $I-H$ is Symmetric

$$(I-H)(I-H)^T = (I-H)(I^T-H^T)$$
$$= I I^T - I H^T - H I^T - H H^T$$
$$= I - H^T - H + H H^T$$
$$= I - H - H + H H$$
$$= I - H$$

Show $(I-H)$ is Idempotent

$$(I-H)(I-H) = I(I-H) - H(I-H)$$
$$= I - H - H + H \cdot H$$
$$= I - 2H + H \cdot H$$
$$= I - 2H + H$$
$$= I - H$$