Two points exist in space, denoted as point $P_a$ and point $P_b$.

This is what we know about the location of point $P_a$:

1. It is located a distance of 2 units from the $z$-axis.
2. It lies on the $y$-$z$ plane, in the portion where $y > 0$.
3. It is located 2 units above the $x$-$y$ plane.

This is what we know about the location of $P_b$:

1. It is located a distance of 4 units from the origin.
2. It has a coordinate value $\theta = 90^\circ$.
3. It lies on the $x$-$z$ plane, in the portion where $x > 0$.

Determine:

a) The position vectors denoting the locations of point $P_a$ and $P_b$

b) The directed distance from point $P_a$ to point $P_b$