

A star is located at  $\langle 1, 3, 0 \rangle \times 10^{14} \text{ m}$ . A planet is located at  $\langle -4, 1, 0 \rangle \times 10^{14} \text{ m}$  and is moving with a velocity  $\langle 2, -1, 0 \rangle \times 10^3 \text{ m/s}$ . What is the relative vector that points from the initial position of the star to the initial position of the planet?

$$\hat{r} = \langle \boxed{\phantom{00}}, \boxed{\phantom{00}}, \boxed{\phantom{00}} \rangle$$