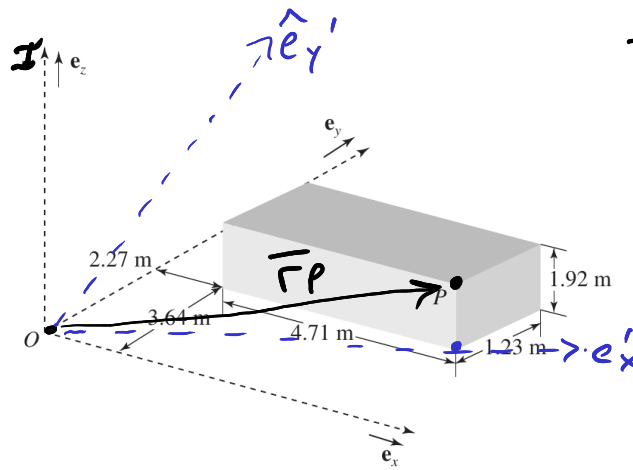


- 1.1 What are the Cartesian coordinates of point  $P$  in frame  $\mathcal{I}$ , as shown in Figure 1.5?



$$\begin{aligned}\bar{r}_P &= (6.98, 3.64, 1.92) \\ &= \begin{bmatrix} 6.98 \\ 3.64 \\ 1.92 \end{bmatrix}\end{aligned}$$

$$= 6.98 \hat{e}_x + 3.64 \hat{e}_y + 1.92 \hat{e}_z$$

Figure 1.5 Problem 1.1.

**1.2** Sketch and label the vectors  $\mathbf{r}_{P/O}$ ,  $\mathbf{r}_{P/Q}$ ,  $\mathbf{r}_{Q/P}$  in Figure 1.6.

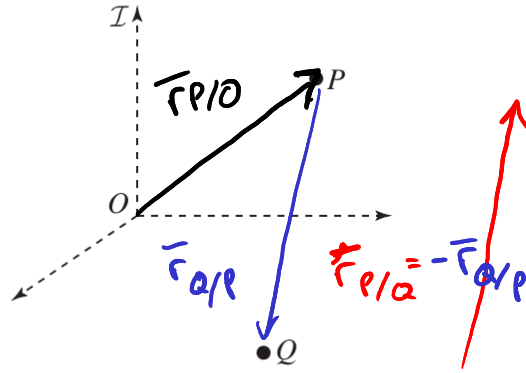


Figure 1.6 Problem 1.2.

position of  $\underline{P}$  with respect to  $\underline{O}$



Figure 2.14 Problem 2.6. Image courtesy of Shutterstock.

Draw a FBD of the barbell

