

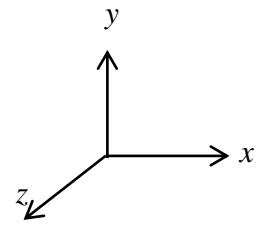
Homework #3

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Calculate the force curves f/v for the situations shown below and draw them as a function of the pair separation r . Try all the three different representations of \mathbf{H}_{nm} and use the same physical parameters summarized in the previous page.

1) Approaching

$$\begin{array}{ll} \mathbf{F}_2 = (f, 0, 0) & \mathbf{F}_1 = (-f, 0, 0) \\ \mathbf{V}_2 = (v, 0, 0) & \mathbf{V}_1 = (-v, 0, 0) \\ \text{Diagram: Two circles labeled 1 and 2. Circle 1 has a horizontal arrow pointing left. Circle 2 has a horizontal arrow pointing right. A horizontal double-headed arrow between them is labeled } \mathbf{r} = (r, 0, 0). \end{array}$$



2) Departing

$$\begin{array}{ll} \mathbf{F}_2 = (-f, 0, 0) & \mathbf{F}_1 = (f, 0, 0) \\ \mathbf{V}_2 = (-v, 0, 0) & \mathbf{V}_1 = (v, 0, 0) \\ \text{Diagram: Circle 2 has a horizontal arrow pointing left. Circle 1 has a horizontal arrow pointing right. A horizontal double-headed arrow between them is labeled } \mathbf{r} = (r, 0, 0). \end{array}$$

3) Tandem

$$\begin{array}{c} \text{Diagram: Two circles labeled 2 and 1. Both have horizontal arrows pointing left. A horizontal double-headed arrow between them is labeled } \mathbf{r} = (r, 0, 0). \end{array}$$

4) Sliding

$$\begin{array}{ll} \mathbf{F}_1 = (0, f, 0) & \mathbf{V}_1 = (0, v, 0) \\ \mathbf{F}_2 = (0, -f, 0) & \mathbf{V}_2 = (0, -v, 0) \\ \text{Diagram: Circle 2 has a vertical arrow pointing down and a horizontal arrow pointing right. Circle 1 has a vertical arrow pointing up and a horizontal arrow pointing right. A horizontal double-headed arrow between them is labeled } \mathbf{r} = (r, 0, 0). \end{array}$$

5) Parallel

