a)

b)
\[
E = C + D
\]
$\vec{E} = \vec{C} - \vec{D}$

$-D_x$

$-D_y$

$\vec{D}$

$\vec{C}$

$C_x$

$C_y$
\begin{align*}
\vec{A} \cos \theta \\
\vec{B}
\end{align*}
a)

\begin{align*}
\vec{B} \cos \theta \\
\vec{A}
\end{align*}
b)
\[ \sin |B| \theta \]

\[ \sin |A| \theta \]

\[ \theta \]

\[ \vec{B} \]

\[ \theta \]

\[ \vec{A} \]

\[ \theta \]

\[ |A| \sin \theta \]

\[ |B| \sin \theta \]

\[ \vec{B} \]

\[ \theta \]

\[ \vec{A} \]

\[ \theta \]

\[ |B| \sin \theta \]
clock hand positions before position 0

clock hand positions after position 0
Sequence of Observations

ordinate

s, m

A

B

C

D

E
\( s = 0 \)

**Trajectory**

\( v_0 \)

\( s = 0 = 0 \)

\( s = -h \)

**Positive Direction**
\[ v = v_0 - g \Delta t \]

\[ s = v_0 \Delta t - \frac{1}{2} g (\Delta t)^2 \]
\[ a = \dot{x} \hat{i} \]

\[ y_i - \frac{\dot{x}_i \dot{y}_i}{\ddot{x}} \]

\[ a = \ddot{x} \hat{i} \]
\[ h = L \tan \alpha \]
\[ W = mg \]
\[ F_{net} = 0 \]
\[ \mathbf{W} = m\mathbf{g} \]
\[ \Delta \theta = \omega \Delta t \]

\[ (x, y) \]

\[ (x_i, y_i) \]

\[ \vec{v} \]

\[ \vec{\rho} \]

\[ \Delta r \]
Instantaneous center of curvature