Impeact

$V_{c}$. - apprioal
$v_{A}-v_{B}$
$v_{B}^{\prime}-v_{A}^{\prime}$
$v_{B}^{\prime}-v_{A}^{\prime}=e\left(v_{A}-v_{B}\right) \quad e:$ conficient of restitution


$$
0 \leq e \leq 1
$$

Oblique catrel impact

$$
v_{B n}^{\prime}-v_{A n}^{\prime}=e\left(v_{A n}-v_{B n}\right)
$$

[115] $e=0.8 \quad \theta=$ ?

$$
v_{A n}=v_{A} \sin 30^{\circ}
$$



$$
v_{B n}=0
$$

$$
v_{A n}^{\prime}=-v_{A}^{\prime} \sin \theta
$$



$$
\begin{gathered}
v_{B n}^{\prime}=0 \\
0-\left(-v_{A}^{\prime} \sin \theta\right)=0.8\left(v_{A} \sin 30^{\circ}-0\right)
\end{gathered}
$$

$$
v_{A}^{\prime} \sin \theta=0.8 v_{A} \sin 30^{\circ}, \quad v_{A}^{\prime}=0.8 v_{A}\left(\frac{\sin 30^{\circ}}{\sin \theta}\right)
$$

The surface of inspat is taken to be frictionless.

$$
\begin{aligned}
& m a_{A A}=m n_{A} \cos 30^{\circ}=m v_{A K}^{\prime}=m v_{A}^{\prime} \cos \theta, \quad v_{A}^{\prime}=v_{A}\left(\frac{\cos 30^{\circ}}{\cos \theta}\right) \\
& k_{A}\left(\frac{\cos 30^{\circ}}{\cos \theta}\right)=0.8 x_{A}\left(\frac{\sin 30^{\circ}}{\sin \theta}\right), \quad \frac{\sin \theta}{\cos \theta}=0.8 \frac{\sin 30^{\circ}}{\cos 30^{\circ}} \\
& \tan \theta=0.8 \tan 30^{\circ}=0.4618, \quad \theta=24.79^{\circ}
\end{aligned}
$$

(A) $16^{\circ}$
(D) $25^{\circ}$
(B) $19^{\circ}$
(E) $28^{\circ}$
(C) $22^{\circ}$

