Projectiles

Jack MagUire

Question: 6

a

$$
\begin{aligned}
s_x &= Ut + \frac{1}{2}at^2 \\
&= Ut\cos\alpha \\
t &= \frac{s_x}{U\cos\alpha}
\end{aligned}
$$

$$
\begin{aligned}
s_y &= Ut + \frac{1}{2}at^2 \\
&= \frac{x}{\cos\alpha} - \frac{g}{2}\frac{x}{U\cos\alpha}^2 \\
&= \frac{x}{\cos\alpha} - \frac{gx^2}{2U^2\cos^2\alpha}
\end{aligned}
$$