## Answer on Question \#73446-Physics-Classical Mechanics

A vaulter is trying to reach a velocity of $7 \mathrm{~m} / \mathrm{s}$ at the end of a $14-\mathrm{m}$ runway. How quickly must he accelerate?

## Solution

We use equation

$$
\begin{gathered}
v^{2}-v_{i}^{2}=2 a s \\
v_{i}=0 \frac{\mathrm{~m}}{\mathrm{~s}} \\
a=\frac{v^{2}}{2 s}=\frac{(7)^{2}}{2(14)}=1.75 \frac{\mathrm{~m}}{\mathrm{~s}^{2}} .
\end{gathered}
$$

Answer: $1.75 \frac{\mathrm{~m}}{\mathrm{~s}^{2}}$.
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