ENERGY & WORK

Unit 10 & 11 Dr. John P. Cise, Professor of Physics, Austin Com.

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A Choreographer Emerges, Assisted by the Chinese Zodiac

City Ballet Performs Justin Peck's 'Year of the Rabbit'

Year of the Rabbit Robert Fairchild, aloft, and fellow members of New York City Ballet in the world premiere of this work by Justin Peck, based on a Sufjan Stevens song cycle, at Lincoln Center on Friday. More Photos »
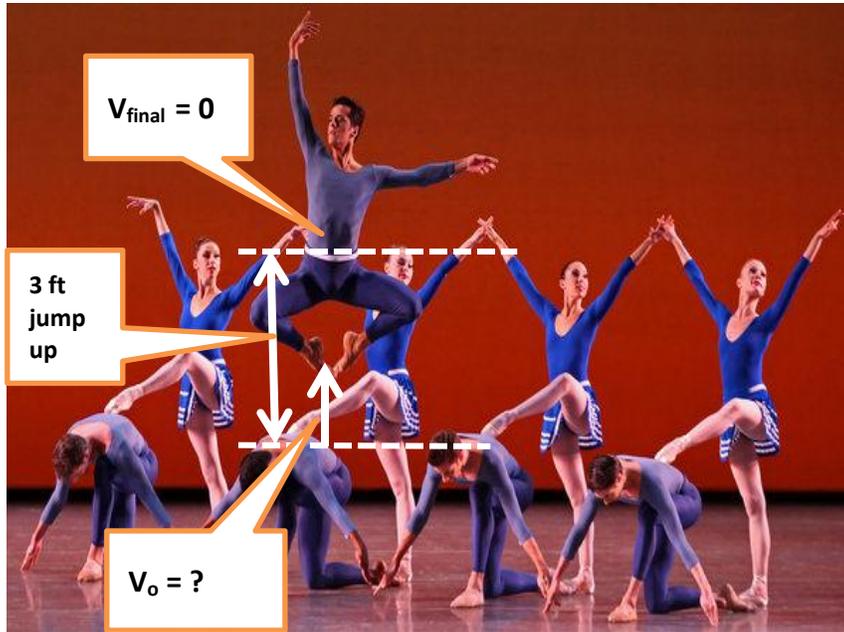
INTRODUCTION: This 128 lb dancer does work to achieve an initial velocity V_o . He rises to a height of 3 ft. before stopping.

HINTS: Gravitational Potential energy = $U = mgh$. $g = 32$ ft/s^2 , mass = m = weight/g
kinetic energy = $K = 1/2Mv^2$,
$W(work) = (delta)K + (delta)U$

QUESTIONS: (a) Determine dancer's increase in potential energy? (b) Find work dancer did as he leaped off the floor? (c) Find the dancer's kinetic energy after he has done initial work? (d) Find the dancer's initial velocity V_0 ? Be sure to show your work toward a solution.

ANSWERS: (a) 384 ft. lb. , (b) 384 ft. lb. , (c) 384 ft. lb. , (d) ~ 13.86 ft/s