

# WORK-ENERGY

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ON SOCCER

## Tie Fails to Settle Anything for Spain and Italy



Andrea Pirlo's free kick for Italy got past Spain's flying wall, as goalkeeper Iker Casillas awaited the arrival of the ball. A pass by Pirlo set up Italy's lone goal.

**INTRODUCTION:** Spain's flying wall of soccer ball defenders leaped three feet trying to stop Italy's winning soccer goal. Each soccer player's weight is  $\sim 160$  lb.

**QUESTIONS:** (a) Find each player's potential Energy after leaping 3 ft.? (b) How much work did each player do to leap 3 ft.? (c) What was each player's initial kinetic energy as they leaped up off the soccer field? (d) Find the mass of each player? (e) What was the initial velocity of each soccer player as they leaped off the soccer field? (f) How much time did it take each player to rise 3 ft.?

**ANSWERS:** (a) 480 ft lb., (b) \_\_\_\_\_, (c) \_\_\_\_\_, (d) 5 slugs, (e)  $\sim 13,86$  ft/s (f)  $\sim 0.43$  s

Respect is the slogan under which UEFA wants its Euro 2012 championships to be played, but too much respect can dull the spectacle. That was how things panned out here in the northern part of Poland where solidarity liberated the workers, but Italian and Spanish princes of the sport canceled out one another. The former world champion, Italy, applied a tourniquet of defense on the talents of Spain, the reigning world champion and defending European titleholder, and the game ended 1-1, yielding few, if any, clues about whether these two leading soccer nations have another big tournament win in them. Yes, the Italians defended excellently; they usually do.