

PROJECTILES

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Why Sports Fans Risk Life and Limb for a Rolled-Up T-shirt



The San Antonio Spurs Coyote firing T-shirts into a crowd in a playoff game in 2014.

INTRODUCTION: The T-shirt cannon at San Antonio Spur basketball games shoots T-shirts at 30° to horizontal direction. T-shirts are projected 80 ft. horizontally and vertically 30 ft. into seats of the spectators. See the graphic below.

QUESTIONS: (a) Find initial speed and flight time? (b) Find velocity of T-shirt when it arrives 30 ft. up in the seats? Velocity has both magnitude & direction.

HINTS: Break solution into V & H parts.

ANSWERS: (a) $V = 92.4 \text{ ft./s.}$, $t = 1 \text{ s}$
(b) $V_2 = \sim 81.24 \text{ ft./s. @ } 10^\circ \text{ above X axis.}$

It's become a sports-event ritual as sacrosanct as the seventh-inning stretch or the singing of the national anthem. After

making the obligatory I-can't-heeeeeear-you hand gestures, the **Pinstripe Police and their cognates**

start catapulting rolled-up shirts in the general direction of fans. Often the squads are

equipped with air cannons. Others go old-school and use slingshots made of surgical tubing. The Phillie Phanatic, never one to be outdone, shoots off free hot dogs using a four-foot pneumatic gun. Fans seeking a free T-shirt before a Los Angeles Angels game in 2014. What's the appeal? Scarcity, for one thing. But the real reason: cost. Credit Jae C. Hong/Associated Press . Reliably, the crowd goes wild. Fans fall over themselves trying to snag a prize. Literally, as David Babusiak of St. John, Ind., can attest. In 2007, Babusiak attended a White Sox game at Chicago's U.S. Cellular Field. Between innings, the Chevrolet Pride Team fired a shirt into the section where Babusiak was sitting. He made his move for the shirt. So did a gaggle of his fellow fans. In the scum, Babusiak later claimed, he was shoved to the ground and suffered a permanent back injury. He filed a civil suit against U.S. Cellular Field and the Pride Team, seeking more than \$75,000 in damages. The defendants, he alleged, were liable because they were "engaging in an abnormally

dangerous activity, namely, **shooting free T-shirts as projectiles into an unsupervised crowd**

of spectators, some of whom may not have been sober. From the perspective of the teams, it's easy to understand the T-shirt-cannon phenomenon. It's a cheap and easy way to keep fans happy, especially in the midst of a dreary season. Give them something to look forward to, even during another blowout or uninspired performance, and they might stick around longer and spend more money on concessions — not to mention keep coming back for more games, perhaps against their better judgment.

