

# Basketball Shot Project



James and Ben

# Makings of a “3 Pointer”

- 21 feet from basket
- Minimum trajectory angle of 33 degrees
- Minimum Arc height (from 6 foot player) = 2.8 feet above basket



# The Magnus Effect

- spin of ball creates lift, therefore allowing for a slower shot, resulting in less rebound if the shot is not made.
- similar to pitching in baseball, at slower speeds resulting in smaller margin of movement in flight

<https://www.youtube.com/watch?v=23f1jvGUWJs>

# The Ideal 3 for a 6 foot tall player

- Trajectory angle of 45 degrees
- Arc height of 10.5 feet (6.5 feet above rim)
- 20 mph initial velocity
- 2 revolutions per second (spin)

<https://www.youtube.com/watch?v=bVpRzitYAs4>

# Why Mr. Ciampa can't shoot 3's

- Exhibit A: Not enough force to achieve ideal arc height (6.5 feet above rim) or displacement necessary (21 feet)
- this is a real video of Mr. Ciampa.
- Being only a mere 5'9, Mr. Ciampa must shoot the ball with a higher angle of trajectory to compensate for the additional 3 inches of arc height. He fails.

<https://www.youtube.com/watch?v=BOEdT4JHjcg>