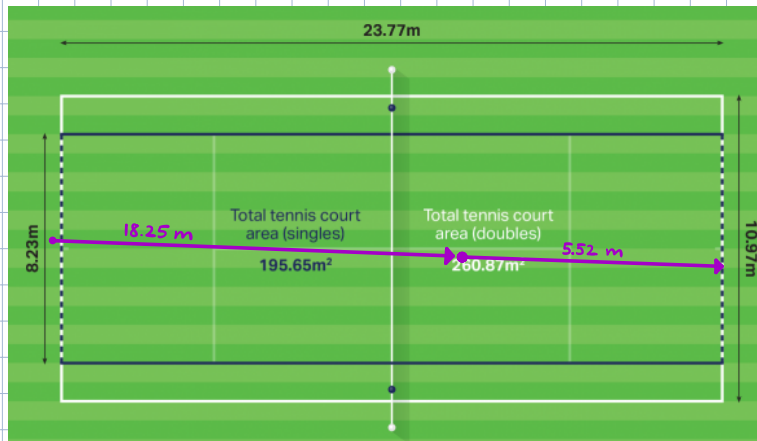


FATEST TENNIS SERVE SPEED = $263 \frac{\text{km}}{\text{h}}$ } https://en.wikipedia.org/wiki/Fastest_recorded_tennis_serves
 $= 73.06 \frac{\text{m}}{\text{s}}$ }



WORST CASE SCENARIO: SUPPOSE THAT THE PURPLE ARROW IS THE WORST CASE SERVE. THE SERVE IS AT THE WORLD RECORD SPEED W/ SHORTEST IN-AIR TRAVEL DISTANCE OF 18.25 m

$$\frac{73.06 \text{ m}}{1 \text{ sec}} = \frac{18.25 \text{ m}}{x \text{ sec}} \rightarrow x = 0.2497 \text{ sec}$$

(Time to impact)

$$\frac{73.06 \text{ m}}{1 \text{ sec}} = \frac{23.77 \text{ m}}{x \text{ sec}} \rightarrow x = 0.3253 \text{ sec}$$

(Time to impact + Bounce Out)

$$\text{MINIMUM FPS} = \frac{8 \text{ samples}}{0.3253 \text{ sec}} \approx 25 \text{ FPS}$$

$$\text{TARGET FPS} = 50 \text{ FPS}$$