If the odds are $2 : 1$ against the hippo, and $3 : 2$ against the rhino, then what should the odds be against the giraffe?

SOLUTION: The simplest approach is to convert everything to probabilities. Odds of $2 : 1$ against the hippo imply that the probability of the hippo winning is $\frac{1}{3}$. Also, odds of $3 : 2$ against the rhino imply that the probability of the rhino winning is $\frac{2}{5}$.

If we now let x denote the probability of the giraffe winning, then we have

$$\frac{1}{3} + \frac{2}{5} + x = 1.$$

This implies that $x = \frac{4}{15}$. A probability of winning of $\frac{4}{15}$ translates into odds of $11 : 4$ against, and that is our answer.