

$$\text{Game} = 30 \\ 4 = 2 \\ \text{size} = 5$$

$$P \times 5C_3 \times P^3 \times (1-P)^2$$

$$\Rightarrow 0.48 \times \frac{5 \times 4}{2 \times 1} \times (0.48)^3 \times (0.52)^2 \\ \Rightarrow 0.14$$

$$\Rightarrow P(\text{Overall game}) = P(i) + P(ii) + P(iii) \\ \Rightarrow 0.053 + 0.1104 + 0.1435 \\ \Rightarrow 0.307 //$$

$$(i) A = 3.03 \quad B = 6.66 \quad C = 3.12$$

$$\text{odds} \rightarrow \text{probability} \\ \Rightarrow \frac{1}{\text{odds}} \Rightarrow \frac{1}{3.03} = 0.33 //$$

$$P(B) = \frac{1}{6.66} = 0.1501 //$$

$$P(C) = \frac{1}{3.12} \Rightarrow 0.3205 //$$

PLAID, B. second behind

$$= \frac{1}{5} \times \frac{1}{4} \times \frac{1}{3} \times 0.33 \times 0.15 \times 0.8205$$

$$= \frac{1}{60} \times 0.016 \times 0.01 \times 0.8205 \Rightarrow 0.00016 //$$

Assumption: probability of each horse
winning that place

first position = 5 ways $\Rightarrow \frac{1}{5}$

second position = 1 out of 4 $\Rightarrow \frac{1}{4}$

third position = 1 out of 3 $\Rightarrow \frac{1}{3}$

$$\text{overall prob} = \frac{1}{5} \times \frac{1}{4} \times \frac{1}{3} \times P(A) \times P(B) \times P(C)$$