

M463 Homework 1

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June 18, 2013

Use the formula to find the house percentage in the following cases.

1. A horse has probability $1/35$ of winning a race but pays only 30:1 odds.

Solution:

$$\text{House Percentage:} = [1 - P(A)(r_{\text{pay}} + 1)] \times 100\% = [1 - \frac{1}{35}(30 + 1)] \times 100\% = 1 - \frac{31}{35} \times 100\% = \boxed{0.11\$} \text{ or } \boxed{11.42\text{cents}}$$

2. A bet on black at the roulette table.

Solution:

$$\text{House Percentage:} = [1 - P(A)(r_{\text{pay}} + 1)] \times 100\% = [1 - \frac{18}{38}(1 + 1)] \times 100\% = 1 - \frac{36}{38} \times 100\% = \boxed{0.0526\$} \text{ or } \boxed{5.26 \text{ cents}}$$