Part 2

Score

$A_0 = 28 - x - 12 = 16 - x$

$B_0 = 28 - (10 - x) - 15 = 3 + x$

Probability

$A_0 = \frac{16-x}{(16-x)(3+x)} = \frac{16-x}{19}$

$B_0 = \frac{3+x}{(16-x)(3+x)} = \frac{3+x}{19}$

Assume $x = 5$

$A_0 = \frac{11}{19}$

$B_0 = \frac{8}{19}$

Expected profit

$A_0 = \frac{11}{19} \times (4-2) = 1.1579$

$B_0 = \frac{8}{19} \times (5-2) = 1.2632$