

Spins and Draws



1. Al and Betty are playing spinner games again. This time the spinner is divided up so that the arrow will land in Al's area $\frac{1}{5}$ of the time and in Betty's area the remaining $\frac{4}{5}$ of the time.

Al pays Betty 30¢ when the arrow lands in her area. Betty pays Al \$1.25 when it lands in his area.

- What is Al's expected value per spin? What is Betty's?
 - How might the payments be changed so that the game is fair?
2. Archibald and Beatrice are playing a game that involves drawing a card from a standard deck. After each draw, the card is returned to the deck. (It doesn't matter which person draws the card—all that matters is which card is drawn.)

If the card drawn from the deck is a jack, then Beatrice pays Archibald 20¢. If the card drawn is a heart, then Archibald pays Beatrice 8¢. If neither a jack nor a heart is drawn, then Archibald and Beatrice each give a penny to charity.

What is the expected value per draw for Archibald, for Beatrice, and for the charity?