

Team names: _____

Application Exercise 1

A community fair game costs \$1 to play. A player rolls a die and takes a card from a deck before adding total points (ace is one point, jack 11, queen 12, king 13). If they win, they receive \$3.



*If you were running the game,
at least how many points should it take to win?*

- (A) 11
- (B) 13
- (C) 16
- (D) 19

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Application Exercise 2

In a game of dice cricket, the 'batter' rolls a die to score 1, 2, 3, 4 or 6 runs. If a 5 is rolled, the 'umpire' rolls a die, with a $\frac{2}{3}$ chance of calling 'out' and the next player gets a turn.

In a recent test match, the Australian Men's Cricket Team played South Africa, scoring 383 runs in 727 balls (121 overs of 6 balls) with ten outs. Thirty-six of these runs were 'fours' where the batsman hit the ball all the way to the boundary of the oval.

*To make dice cricket with realistic probabilities,
which roll(s) would best represent scoring a four?*

- (A) 
- (B) 
- (C) 
- (D) any total to 4