

Beat the House

By: Greg Peszek

As the puzzle and opening slide deck imply, this is the \$1,000,000 meta puzzle! Answering the other puzzles gives you pairs of cards with letters that correspond to a 52 card deck. Noticing that the card pairs create a 52 card deck is the first step in the meta puzzle.

The second step is to apply the flavor text and determine that that a game of blackjack needs to be played 1 on 1 against the dealer using standard Vegas blackjack rules. Some Vegas casinos have slightly different rules however none of those variations will affect the outcome of the hands played. An important point to know is that the first card of a new shoe is always burned, which is confirmed by the 7♥ being marked as "BURN".

Third step is to find that blackjack has a "basic strategy" that has been mathematically computed to give the player the best odds possible and is widely published online. This is the guide by which to play the game as the player as the dealer's behavior in blackjack is automatic. None of the hands end up being in any corner cases though there are some decisions that "basic strategy" says to use that are not immediately obvious such as hitting a player 12 against a dealer 2 or the last hand of splitting the player's 9s. Playing the game has "sign posts" in that every 2nd hand results in a suited blackjack for the player. This is to let the player know that they're on the right path.

When played right, here is the deck and each hand:

Hand	Player Card	Player/Dealer	Value	Card	Hand Result
		BURN	BURN	7♥	This card is burned.
1	1	P	I	7♦	Player dealt 7
		D	F	8♥	Dealer shows 8
	2	P	3	9♣	Player dealt 9, makes 16 and hits
		D	E	Q♥	Dealer hole card queen makes 18 and stands
3	P	E	5♦	Player hits, makes 21 - player wins 21 vs 18	
2	4	P	7	A♠	Player dealt ace
		D	B	T♥	Dealer shows 10
	5	P	5	J♠	Player dealt jack, blackjack (spades)
		D	2	5♠	Dealer dealt 5, makes 15 - player wins blackjack vs 15
3	6	P	4	T♠	Player dealt 10
		D	x	K♦	Dealer shows 10
	7	P	0	7♣	Player dealt 7, makes 17 and stands
		D	9	4♣	Dealer hole card 4 makes 14 and hits
	D	6	8♠	Dealer dealt 8, makes 22 and busts - player wins 17 vs bust	

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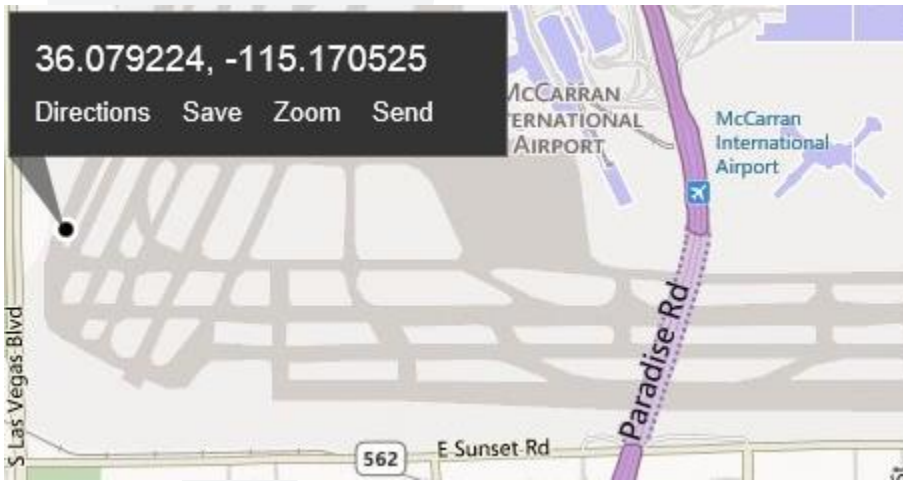
4	8	P	x	A♣	Player dealt ace
		D	A	7♠	Dealer shows 7
	9	P	4	J♣	Player dealt jack, blackjack (clubs)
		D	3	T♦	Dealer dealt 10, makes 17 - player wins blackjack vs 17
5	10	P	2	K♣	Player dealt king (10)
		D	7	6♣	Dealer shows 6
	11	P	1	8♣	Player dealt 9, makes 19 and stands
		D	F	6♠	Dealer hole card 6 makes 12 and hits
		D	1	3♥	Dealer dealt 3, makes 15 and hits
6	12	P	0	A♥	Player dealt ace
		D	3	2♦	Dealer shows 2
	13	P	5	J♥	Player dealt jack, blackjack (hearts)
		D	C	Q♦	Dealer hole card queen makes 12 - player wins blackjack vs 12
7	14	P	1	8♦	Player dealt 8
		D	3	2♣	Dealer shows 2
	15	P	2	4♠	Player dealt 4, makes 12 and hits
		D	E	Q♣	Dealer hole card queen makes 12 and hits
	16	P	0	6♦	Player dealt 7, makes 19 and stands
		D	D	4♥	Dealer dealt 4, makes 16 and hits
8	17	P	0	A♦	Player dealt ace
		D	1	6♥	Dealer shows 6
	18	P	x	J♦	Player dealt jack, blackjack (diamonds)
		D	2	Q♠	Dealer hole card queen makes 16 - player wins blackjack vs 16
9	19	P	C	9♠	Player dealt 9
		D	B	9♥	Dealer shows 9
	20	P	2	9♦	Player dealt 9, makes 18 and splits
		D	A	T♣	Dealer hole 10, makes 19 and stands
	21	P (1)	E	5♣	Player split hand 1 dealt 5, makes 14 and hits
	22	P (1)	6	2♠	Player split hand 1 dealt 2, makes 16 and hits
	23	P (1)	5	4♦	Player split hand 1 dealt 4, makes 20 and stands
	24	P (2)	7	3♦	Player split hand 2 dealt 3, makes 12 and hits
	25	P (2)	4	3♠	Player split hand 2 dealt 3, makes 15 and hits
26	P (2)	F	5♥	Player split hand 2 dealt 5, makes 20 and stands - player wins two hands 20 vs 19	

CUT
 X CARD Shoe ends when the cut card is reached.
 1 3♣ This card is not used
 B K♠ This card is not used

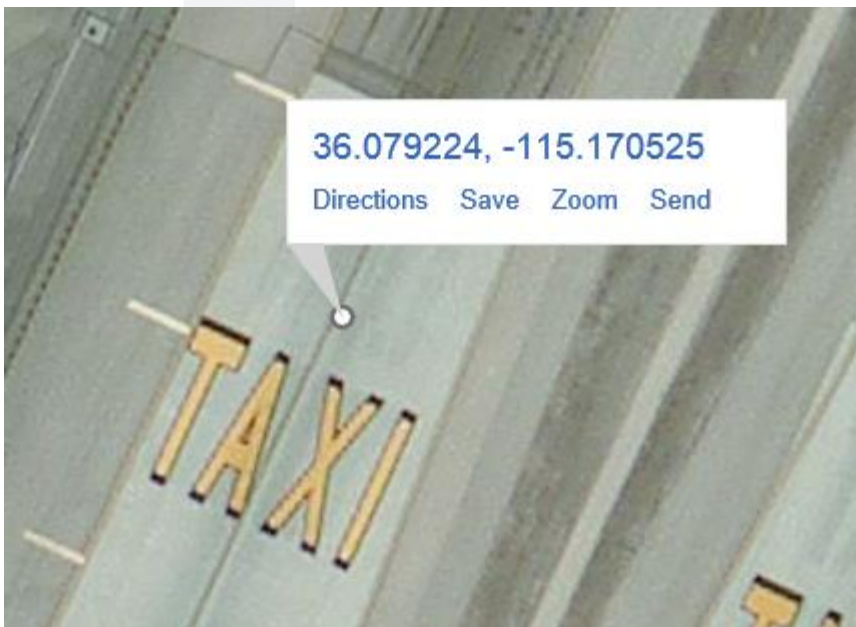
After playing the game through the deck and to the cut card the player will win every hand, fulfilling the first part of the flavor text. The letters that correspond to the cards the players get in order spell out a message: "13E7540x421051200xC2E6574F". This is the start of the second half of the meta.

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Two pieces are in the message: the relatively cryptic phrase "I3E754" and two hex numbers. The former refers to the [http://en.wikipedia.org/wiki/IEEE floating point](http://en.wikipedia.org/wiki/IEEE_floating_point) spec. Decoding the hex numbers to floating point digits encoded is the first step which gives **36.079224** and **-115.170525**, which look a lot like GPS coordinates. Viewing those coordinates on a map points to McCarran international airport in Las Vegas, which should hint that you are on the right path.



The spot looks pretty non-descript but the airport is clued in the flavor text and it is hinted that you need to look really close...



Zooming in to the spot shows the answer "**TAXI**", which someone who is arriving in Las Vegas could easily see right after landing at the airport both driving around and written on the runway!

Note that this text was repainted at some time in the last few years and may show "**TAXI ONLY**" on some maps, which is also acceptable.

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