

Expected Value & Lottery Tickets

The tables below are example of past Minnesota State Lottery Scratch Games and their payouts. Answer the question below for each scratch game:

Fast 5's			Joker's Wild		
To Win	Approx. Odds	Approx. #	To Win	Approx. Odds	Approx #
\$1	1 in 9.76	422,800	\$2	1 in 9.52	302,400
\$2	1 in 12.90	334,800	\$4	1 in 10.53	273,600
\$3	1 in 66.67	64,800	\$5	1 in 66.67	43,200
\$5	1 in 133.33	32,400	\$6	1 in 200	14,400
\$7	1 in 133.33	32,400	\$10	1 in 100	28,800
\$10	1 in 200	21,600	\$15	1 in 200	14,400
\$15	1 in 400	10,800	\$20	1 in 200	14,400
\$20	1 in 400	10,800	\$25	1 in 200	14,400
\$25	1 in 800	5,400	\$50	1 in 480	6,000
\$40	1 in 1,600	2,700	\$100	1 in 1,600	1,800
\$75	1 in 3,000	1,440	\$250	1 in 12,000	240
\$100	1 in 12,000	360	\$1,000	1 in 120,000	24
\$500	1 in 60,000	72	\$20,000	1 in 480,000	6
\$5,000	1 in 240,000	18			
	*Cost per ticket = \$1 *Overall odds of winning = 1 in 4.5			*Cost per ticket = \$2 *Overall odds of winning = 1 in 4.04	

1. What is the probability that if you buy a Fast 5 ticket, you will win \$100 or more?
2. What is the probability that if you buy a Joker's Wild ticket, you will win \$100 or more?
3. Find the expected value of a single ticket for each scratch game.
4. Which ticket has the better "value" (expected value).
5. How much would the state plan to make from each of these scratch games?
6. Which of these two games is more profitable to the state?
7. What is the probability that you would make money on a Fast 5 ticket?
8. What is the probability that you would make money on a Joker's Wild ticket?
9. If you bought 100 Fast 5 tickets, how much should you expect to lose?
10. If you bought 100 Joker's Wild tickets, how much should you expect to lose?