

Sheet1

Mean number of strokes per hole is 3.9. Hence, the mean number of strokes for 18 holes is  $18 * 3.9 = 70.2$

The event “more than 72 strokes” is the complement of the event “at most 72 strokes”. Then  $P(\text{more than 72 strokes}) = 1 - P(\text{at most 72 strokes}) = P(72) + P(71) + P(70) + \dots + P(18)$ . Note that  $x$  strokes and  $y$  strokes are mutually exclusive for  $x$  not equal to  $y$ . Also, note that we have to stop at 18 because for the player to play 18 holes, he needs to play at least 18 strokes, i.e.  $x > 17$ .

Using table below we can find  $P(x)$  for each  $x = 18, 19, \dots, 72$ , using the formula for Poisson distribution and parameters:

$$\mu = 70.2$$

$$e = 2.71828$$

$$P(\text{at most 72 strokes}) = P(72) + P(71) + \dots + P(18) = 0.615$$

$$P(\text{more than 72 strokes}) = 1 - P(\text{at most 72 strokes}) = 1 - 0.615 = 0.385$$

x	$P(x) = \mu^x * e^{(-\mu)} / (x!)$	x	$P(x) = \mu^x * e^{(-\mu)} / (x!)$	x	$P(x) = \mu^x * e^{(-\mu)} / (x!)$
18	8.71515019302612E-014	36	2.57127640995966E-006	54	0.0071028707
19	3.22001865026544E-013	37	4.87847578322075E-006	55	0.0090658459
20	1.13022654624317E-012	38	9.01234210479202E-006	56	0.0113646854
21	3.77818588315574E-012	39	1.62222157886256E-005	57	0.0139965073
22	1.2055847681706E-011	40	0.00002847	58	0.0169406002
23	3.67965437937289E-011	41	4.87461757896212E-005	59	0.020156443
24	1.07629890596657E-010	42	8.14757509626525E-005	60	0.0235830383
25	3.02224732795413E-010	43	0.0001330139	61	0.0271398244
26	8.16006778547614E-010	44	0.0002122176	62	0.030729285
27	2.1216176242238E-009	45	0.0003310595	63	0.0342412033
28	5.31919847216109E-009	46	0.0005052256	64	0.0375583199
29	1.28761287153693E-008	47	0.0007546135	65	0.0405629855
30	3.01301411939641E-008	48	0.0011036223	66	0.0431442664
31	6.82301907037509E-008	49	0.0015811079	67	0.0452048881
32	1.49679980856354E-007	50	0.0022198755	68	0.0466673992
33	3.18410141094425E-007	51	0.0030555933	69	0.0474790061
34	6.57423291318489E-007	52	0.0041250509	70	0.0476146604
35	1.3186032871588E-006	53	0.0054637467	71	0.0470781572
				72	0.0459012033
				<b>Total</b>	<b>0.6152102569</b>