Practical: 06

➢ Perform testing of hypothesis using Z-test.

One sample:

IQ
82
82
85
87
87
88
92
92
94
94
95
96
97
97
97
99
99
101
101
103
103
105
107
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109
109
110
112
112
113
114
115

Given:

population mean = 100,
population std dev = 15.

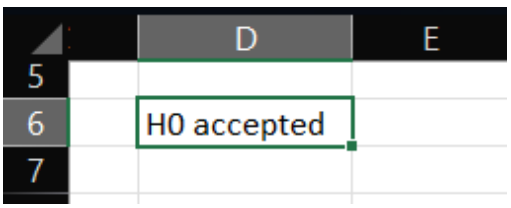
H0: population mean is equal to 100.
H1: population mean is not equal to 100.

Click on D2 and type =Z.TEST(A2:A33,100,15)

*(Please note that this gives us value for a one-tailed test. To obtain P-value for two-tailed test click on D4 and type =D2*2. This will give us an approximate P-value for two-tailed Z-test.)*

	0.565525	one tail
P-value	1.131049	two tail

Go to D6 and type =IF(D4>0.05,"H0 accepted","H1 accepted,H0 rejected")



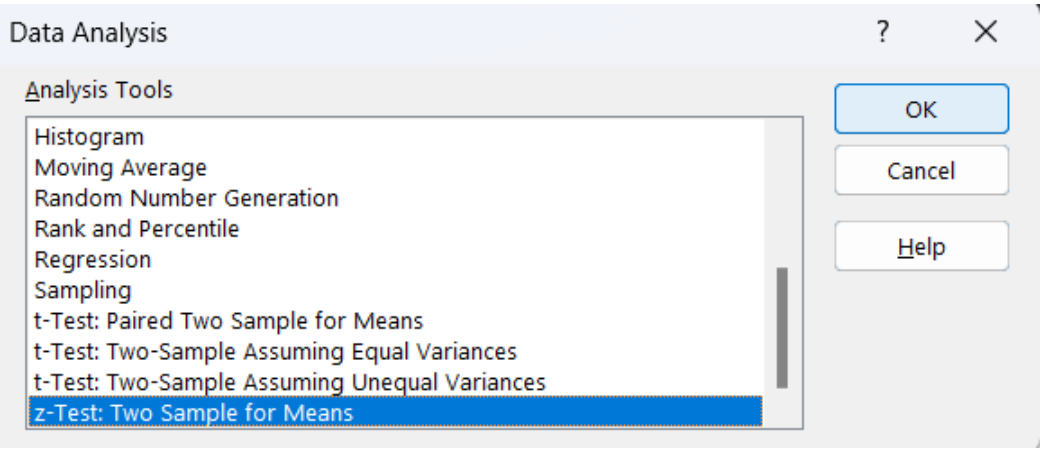
Two sample:

CITY A	CITY B
82	88
84	88
85	90
89	91
89	91
90	91
90	93
90	93
91	95
91	95
92	99
94	99
94	102
94	102
98	105
98	107
99	108
99	109
105	109
106	114
106	115
109	116
109	117
109	117
110	119
112	123
112	128
113	129
114	130
114	133

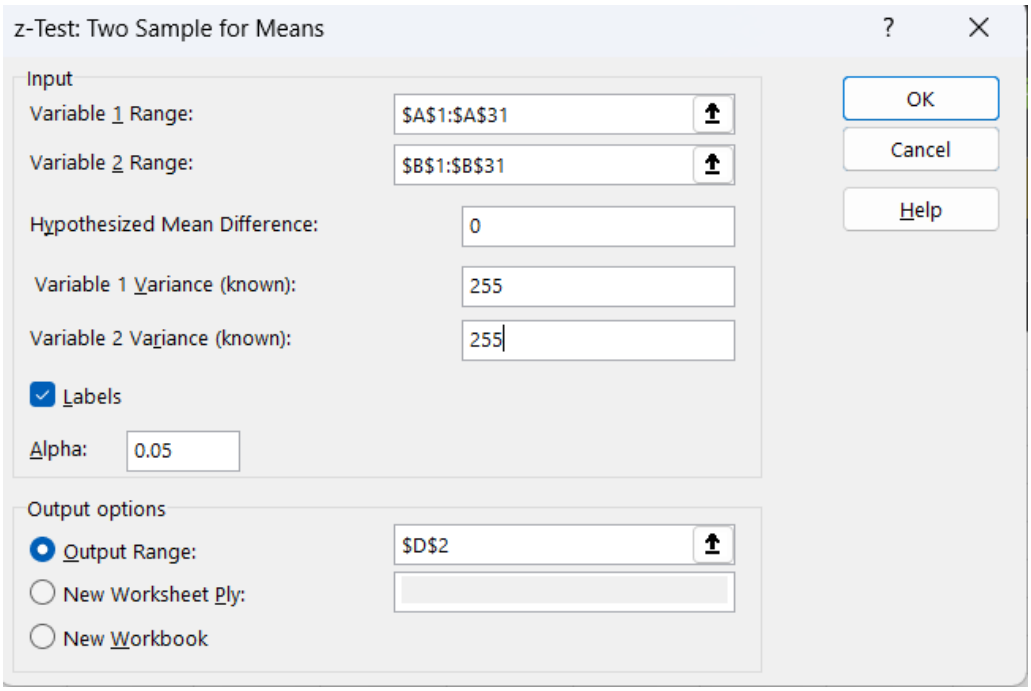
Given: variance for city
a: 225 Variance for city b: 225

H0: population mean for city a = population mean for city b
H1: population mean for city a is not equal to population mean for city b.

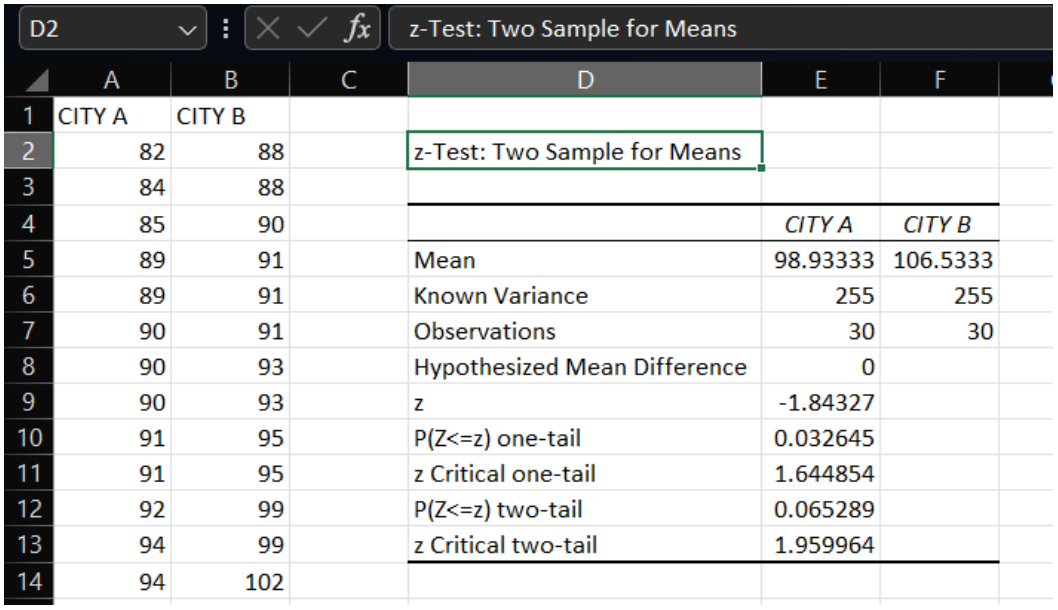
Go to Data tab > Data Analysis



Click on OK.



Click on OK.



	A	B	C	D	E	F
1	CITY A	CITY B				
2	82	88		z-Test: Two Sample for Means		
3	84	88				
4	85	90			*CITY A*	*CITY B*
5	89	91		Mean	98.93333	106.5333
6	89	91		Known Variance	255	255
7	90	91		Observations	30	30
8	90	93		Hypothesized Mean Difference	0	
9	90	93		z	-1.84327	
10	91	95		P(Z<=z) one-tail	0.032645	
11	91	95		z Critical one-tail	1.644854	
12	92	99		P(Z<=z) two-tail	0.065289	
13	94	99		z Critical two-tail	1.959964	
14	94	102				

Click on D15 and type =IF(E12>0.05,"H0 accepted","H1 accepted, H0 rejected")

Output:

	A	B	C	D	E	F
1	CITY A	CITY B				
2	82	88		z-Test: Two Sample for Means		
3	84	88				
4	85	90			*CITY A*	*CITY B*
5	89	91		Mean	98.93333	106.5333
6	89	91		Known Variance	255	255
7	90	91		Observations	30	30
8	90	93		Hypothesized Mean Difference	0	
9	90	93		z	-1.84327	
10	91	95		P(Z<=z) one-tail	0.032645	
11	91	95		z Critical one-tail	1.644854	
12	92	99		P(Z<=z) two-tail	0.065289	
13	94	99		z Critical two-tail	1.959964	
14	94	102				
15	94	102		H0 accepted		
16	98	105				