PRACTICE 7: Main Criteria for Selecting Statistical Methods for Data Comparison.

The formula for the Kolmogorov-Smirnov criterion (test).

$$D_{emp} = \frac{\tilde{max}|f_e - f_b|}{n}$$

Below are the empirical frequency results based on the methodology conducted by a psychologist.

	I	II	III	IV	V	VI	VII
Emperical frequency	10	13	14	16	16	17	19

1) fe -cumolative of probability frequency;
2) fb -cumolative of emperical frequency.

First, the probability frequency is determined based on the empirical frequency. In this process, the mean value of the empirical values is calculated.

105 : 5 = 15 **Mean** = 15

The probability frequency is arranged as follows.

Groups	I	II	III	IV	V	VI	VII
B- emperical frequencies	10	13	14	16	16	17	19
E-probability frequencies	15	15	15	15	15	15	15

fe	15	30	45	60	75	90	105
fb	10	23	37	53	69	86	105
(fe-fb)	5	7	**8**	7	6	4	0

$$\mathbf{D_{emp} = \frac{8}{105} = 0.076;}$$

Fisher test formula. Determining the homogeneity of two variances

$$\mathbf{F}=\frac{\sigma_1^2}{\sigma_2^2}; \qquad \sigma_1^2=\frac{(x_1-\bar{x})^2}{n-1}; \qquad \sigma_2^2=\frac{(y_1-\bar{y})^2}{n-1}.$$

σ_1^2= higher dispersion.

How to colculate:

n	1-group	$(x_1-\bar{x})^2$	№ n	2-group	$(y-\bar{y})^2$
1.	45	102	1.	34	702
2.	92	1362	2.	68	56
3.	34	445	3.	45	240
4.	40	228	4.	70	90
5.	45	102	5.	47	182
6.	44	123	6.	60	0,25
7.	80	620	7.	84	552
8.	87	1018	8.	53	56
9.	45	102	9.	49	132
10.	67	142	10.	70	90
11.	43	147	11.	67	42
12.	40	228	12.	80	380
$\sum$	**662**	**4618**	$\sum$	**727**	**2527**
$\bar{x}$	**55**		**y**	**60**	

$$S_1^2=\frac{4618}{12-1}=420$$
$$S_1^2=\frac{2527}{12-1}=230$$

$$F_{emp}=\frac{420}{230}=1.82.$$