10.

a) H_0: ~~цифры~~ равновероятны $H_1: \overline{H_0}$ (Критерий χ^2)

i	0	1	2	3	4	5	6	7	8	9
m_i	5	8	6	12	14	18	11	6	13	7
nP_i	10	10	....		10		....	~~100~~ 10	10	10

$$\Delta \rightsquigarrow \chi^2(10-1) = \chi^2(9)$$

$$\tilde{\Delta} = \sum_{i=0}^{9} \frac{(m_i - nP_i)^2}{nP_i} \approx 16.4$$

$$p\text{-value} = P(\Delta \geq \tilde{\Delta} \mid H_0) = \int_{16.4}^{+\infty} q(t)\,dt = 0.059$$

Нет оснований отвергнуть H_0.

б) $H_0: \sim N(\alpha_1, \mu_2)$ $H_1: \overline{H_0}$ $d_1 = \overline{x} \approx 4.77$ $\overset{\overset{\text{ОМП}}{\smile}}{\mu_2} = s^2 \approx 6.34$

i	0	1	2	3	4	5	6	7	8	9
A_i	$(-\infty, 1)$	$[1,2)$	$[2,3)$	$[3,4)$	$[4,5)$	$[5,6)$	$[6,7)$	$[7,8)$	$[8,9)$	$[9, +\infty)$
M_i	5	8	6	12	14	18	11	6	13	7
nP_i	6.72	6.85	10.54	13.86	15.65	15.10	12.47	8.81	5.33	4.65

$$\overset{\sim}{\Delta} = \sum_{i=0}^{9} \frac{(M_i - nP_i)^2}{nP_i} = 16.87 \qquad \Delta \rightsquigarrow \chi^2(10-1-2) = \chi^2(7)$$

$$p\text{-value} = P(\Delta \geq \overset{\sim}{\Delta} \mid H_0) = \int_{16.87}^{+\infty} q(t)\,dt \approx 0.01825$$

Отвергаем H_0.