Exam 6 Review

Note: This is not a complete list of topics – you should study your lecture notes and homework in addition to reviewing the items listed here.

1. Terms:
   a. hypothesis testing
   b. null hypothesis
   c. alternative hypothesis
   d. critical values
   e. critical regions
   f. Type I error
   g. Type II error
   h. test statistic
   i. *p*-value

2. Errors

decision \ reality	H_0 true	H_0 not true
reject H_0	Type I error	correct
do not reject H_0	correct	Type II error

3. Hypothesis testing

null hypothesis	conditions	test statistic
$H_0 : \mu = \mu_0$, σ known	normally distributed population or $n \geq 30$	$Z = \dfrac{\bar{x} - \mu_0}{\sigma / \sqrt{n}}$
$H_0 : \mu = \mu_0$, σ unknown	normally distributed population or $n \geq 30$	$t = \dfrac{\bar{x} - \mu_0}{s / \sqrt{n}}$, $n-1$ d.f.

(1) $H_0 : \mu = \mu_0$

$$H_a : \text{one of } \begin{cases} \mu \neq \mu_0 \\ \mu < \mu_0 \\ \mu > \mu_0 \end{cases}$$

(2) $\alpha =$ (given)

(3) test statistic (shown above)

(4) critical value (using α) or *p*-value

p-value = *P* (obtaining your test statistic or more extreme assuming H_0 is true)

(5) Decide whether to reject H_0.

(6) There (is)/(is not) enough evidence at the (α) level of significance to support the claim that the (H_a).