Hypothesis Testing with α Significance Level

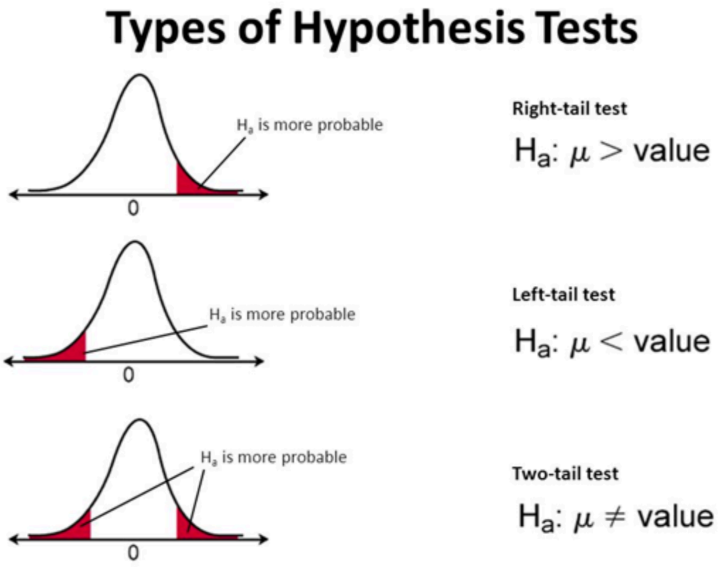
Remember that a hypothesis test consists of five main steps:

(1) Figure out the hypothesis: H_0 and H_A (the equal option always goes into H_0).
(2) Compute test statistic: $z_{\text{test}} = \frac{\bar{x}-\mu_0}{\frac{\sigma}{\sqrt{n}}}$

Here, μ_0 is the value that shows up in H_0

(3) Find p-value (we look at the sign in the alternative H_A):

If $H_A: \mu > a \Rightarrow$ p-value $= P(Z > z_{\text{test}})$
If $H_A: \mu < a \Rightarrow$ p-value $= P(Z < z_{\text{test}})$
If $H_A: \mu \neq a \Rightarrow$ p-value $= P(Z < -|z_{\text{test}}|) + P(Z > |z_{\text{test}}|)$



(4) Decision

- If p-value $< \alpha$ we say that there is enough evidence to reject H_0. In other words, we reject H_0
- If p-value $\geq \alpha$ we say that there is not enough evidence to reject H_0. In other words, we can't reject H_0

5) Conclusion: write the decision from (4) in words using the context offered by the problem.