

1.7 A magazine reported that 30 percent of American children skip breakfast. Suppose a foreign social scientist wants to determine if this figure differs for children in her country. What can one conclude in this regard if a random sample of 500 children revealed that 172 skip breakfast. Include the P-value and a one sentence statement with your conclusion.

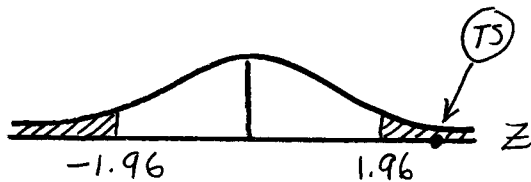
$H_0: p = 0.30$
 $\rightarrow H_1: p \neq 0.30$
 $\alpha = 0.05$

Sample Data

$n = 500$
 $x = 172$
 $\hat{p} = 172/500 = 0.344$

Critical Values $Z = \pm 1.960$

Test Statistic



$$z = \frac{\hat{p} - p}{\sqrt{\frac{pq}{n}}} \quad z = \frac{0.344 - 0.30}{\sqrt{\frac{(.3)(.7)}{500}}} \approx \boxed{2.147}$$

P-value ≈ 0.032

Reject H_0 . There is sufficient evidence to support the claim that the 30% figure differs for children in her country.

STUDY: Chapter 7: Section 7.5
 • Hypothesis test, proportion