Problem 1

(a) • The non-numerical question:
Should Cableview enter the El Paso market in the year 2016?

• (Step 1)
Question: What percentage of all 22,000 cable-less households in El Paso would be willing to purchase Cableview’s service in the year 2016?

• (Step 2)
Population = the 22,000 cable-less households in El Paso in 2016

• (Step 3)
Sample = the 300 cable-less households in El Paso contacted in the telephone poll

• (Step 4)
Variable = a Yes/No answer to whether a household is willing to purchase Cableview’s service in 2016

• (Step 5)
Summary: 33/300 = 0.11 or 11% of the 300 households contacted in the telephone poll agreed to purchase Cableview’s service in 2016.

• (Step 6)
Inference: Approximately 11% of all 22,000 cable-less households in El Paso would be willing to purchase Cableview’s service in 2016.

(b) We estimate that 0.11 \times 22,000 = 2420 cable-less households in El Paso would be willing to purchase Cableview’s service in 2016, less than the break-even point of 3800 households, so Cableview should not enter the El Paso market in 2016.

(c) One weakness is that the telephone poll won’t reach any cable-less households in El Paso which don’t have phone service. So the survey can’t measure whether such households want to purchase Cableview’s service.
Problem 2

(a) • (Step 1)
   Question: What is the total retail value of all athletic shoes in stock at the store on Jan. 10, 2016?

• (Step 2)
   Population = the 546 pairs of athletic shoes in stock on Jan. 10, 2016

• (Step 3)
   Sample = the 546 pairs of athletic shoes in stock on Jan. 10, 2016

• (Step 4)
   Variable = the retail price of a single pair of athletic shoes

• (Step 5)
   Summary: The total retail value of all athletic shoes in stock on Jan. 10, 2016 is $35,234.90.

• (Step 6)
   Inference: The total retail value of all athletic shoes in stock on Jan. 10, 2016 is $35,234.90.

(b) The sample and the population are identical.

(c) Assuming no math errors, the inference has perfect or complete reliability since all relevant information is available!

Problem 3

(a) • The non-numerical question:
   Should Shop N’ Go open a new convenience store in the middle-class suburban neighborhood of Miami?

• (Step 1)
   Question: What is the average annual household income in the middle-class suburban neighborhood of Miami?

• (Step 2)
   Population = the 1240 households in the Miami neighborhood

• (Step 3)
   Sample = the 62 households in the neighborhood which gave responses in the door-to-door survey

• (Step 4)
   Variable = the annual income of a particular household in the neighborhood
• (Step 5)
  Summary: The average annual income for the 62 households which responded to the door-to-door survey is $64,425.

• (Step 6)
  Inference: The average annual income of all 1240 households in the neighborhood is approximately $64,425.

(b) Yes, the store should be opened since the estimated average annual household income of $64,425 exceeds the minimum requirement of $60,000.