1. For each question, identify the appropriate statistical scenario described in the problem background.

   Background: In a blind taste test to compare two new juice flavors, grape and apple, consumers were given a sample of each flavor and the results will be used to estimate the percentage of all such consumers who prefer the grape flavor to the apple flavor.

   - (●) Single population proportion
   - ( ) Difference in two population proportions
   - ( ) Single population mean
   - ( ) Population mean difference for paired data
   - ( ) Difference in two population means

   ✓ **Correct**

2. For each question, identify the appropriate statistical scenario described in the problem background.

   Background: A company has recently started an exercise program for its workers to assess if it will improve job satisfaction on average, as measured by a questionnaire (with higher scores indicating more satisfied employees). Scores for 30 randomly selected workers were recorded both before the start of program and after the exercise program's implementation.

   - ( ) Single population proportion
   - ( ) Difference in two population proportions
   - ( ) Single population mean
   - (●) Population mean difference for paired data
   - ( ) Difference in two population means

   ✓ **Correct**

3. For each question, identify the appropriate statistical scenario described in the problem background.

Background: Over the last ten years, a local college has improved their athletic facilities, implemented online player registration, and offered new payment plans for intramural sports. They wish to evaluate if the participation rate in intramural sports is higher today than it was ten years ago. They poll a large random sample of alumni that graduated ten years ago and a large random sample of currently enrolled students.

- ○ Single population proportion
- ◉ Difference in two population proportions
- ○ Single population mean
- ○ Population mean difference for paired data
- ○ Difference in two population means

✓ **Correct**

4. For each question, identify the appropriate statistical scenario described in the problem background.

Background: A local blood drive urges donors to set up an appointment for their donation. They give donors with an appointment priority over those who come in without one. The coordinators would like to estimate the difference in average wait times for donors with an appointment and donors without an appointment.

- ○ Single population proportion
- ○ Difference in two population proportions
- ○ Single population mean
- ○ Population mean difference for paired data
- ◉ Difference in two population means

✓ **Correct**

5. For each question, identify the appropriate statistical scenario described in the problem background.

Background: The Safety Patrol for a ski resort conducts a survey of skiers and snowboarders to assess if there is a significant difference in the rate of skiers and the rate of snowboarders that are able to state the *Mountain's Responsibility Code*. A large sample of skiers and snowboarders are polled randomly throughout the day.

- ○ Single population proportion
- ◉ Difference in two population proportions
- ○ Single population mean
- ○ Population mean difference for paired data
- ○ Difference in two population means

✓ **Correct**

6. For each question, identify the appropriate statistical scenario described in the problem background.

Background: Police set up a vehicle checkpoint at which drivers are stopped at random and their cars are inspected for safety problems. Police look to estimate the percentage of all cars on the road that may be unsafe.

- ◉ Single population proportion
- ○ Difference in two population proportions
- ○ Single population mean
- ○ Population mean difference for paired data
- ○ Difference in two population means

✓ **Correct**

7. For each question, identify the appropriate statistical scenario described in the problem background.

Background: Electric scooters from a new startup company have recently been deployed in major cities across the nation as a cheap form of transportation. The company finds that the average scooter trip lasts 12.8 minutes. Looking to expand to smaller towns, the company deploys a small group of scooters to Ann Arbor. The company would like to evaluate if the average trip time is less for the scooters in the town of Ann Arbor.

- ○ Single population proportion
- ○ Difference in two population proportions
- ◉ Single population mean
- ○ Population mean difference for paired data
- ○ Difference in two population means

✓ **Correct**

8. For each question, identify the appropriate statistical scenario described in the problem background.

Background: Two methods of treatment, A and B, for a particular disease were investigated. Out of 257 patients treated with method A, 41 were cured of the disease. Out of 244 patients treated with method B, 64 were cured of the disease. Does either treatment have a higher healing rate?

- ○ Single population proportion
- ◉ Difference in two population proportions
- ○ Single population mean
- ○ Population mean difference for paired data
- ○ Difference in two population means

✓ **Correct**

9. For each question, identify the appropriate statistical scenario described in the problem background.

   Background: A local gym offers a variety of fitness classes, one of these being Cardio Crash – a class designed to get participants' heart rates up. Workout instructors would like to learn more about the average difference in heart rate during the class. They record each participant's heart rate before the class begins and midway through the workout routine.

   - ○ Single population proportion
   - ○ Difference in two population proportions
   - ○ Single population mean
   - ◉ Population mean difference for paired data
   - ○ Difference in two population means

   ✓ **Correct**

10. For each question, identify the appropriate statistical scenario described in the problem background.

    Background: A local grocery store recently installed new scanning machines at the self-service checkout kiosks to improve checkout speeds. On average, it used to take customers 6 minutes to checkout at the self-service kiosks. The store records the checkout times of 35 randomly selected customers using the newly updated self-service kiosks.

    - ○ Single population proportion
    - ○ Difference in two population proportions
    - ◉ Single population mean
    - ○ Population mean difference for paired data
    - ○ Difference in two population means

    ✓ **Correct**