

AP Stats
Chap 19
Handout 2

Name _____ Pd _____

Show all necessary work and place your answers in/on the spaces provided.

Explosives Sensor.

A company claims to have invented a hand-held sensor that can detect the presence of explosives inside a closed container. Law enforcement and security agencies are very interested in purchasing several of the devices if they are shown to perform effectively. An independent laboratory arranged the test. They placed four empty boxes in the corners of an otherwise empty room. For each trial they put a small quantity of an explosive in one of the boxes selected at random. The company's technician then entered the room and used the sensor to try to determine which of the four boxes contained the explosive. The experiment consisted of 50 trials, and the technician was successful in finding the explosive 16 times. Does this indicate that the device is effective in sensing the presence of explosives?

1. Test an appropriate hypothesis and state your conclusion.
2. Was your test one-tail upper tail, lower tail, or two-tail? Explain why you chose that kind of test in this situation.
3. Find a 95% confidence interval for this situation. Present the interval in appropriate context.