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# Additional Practice

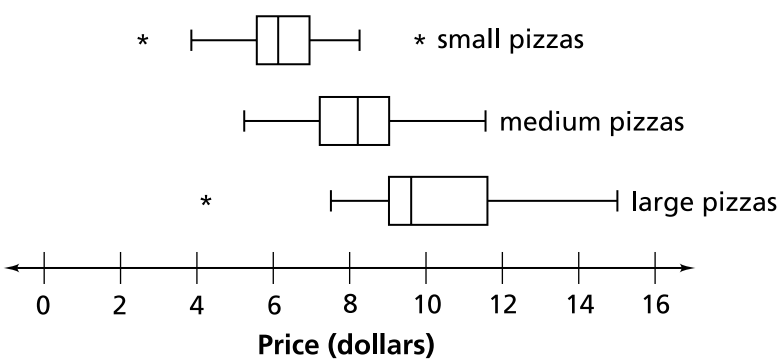
Investigation 3

**Samples and Populations**

**1.** A group of students surveyed several pizza shops in two parts of the United States. They asked about prices and sizes of small, medium, and large cheese pizzas, and they made box plots from the data they collected.

**a.** These box plots show the prices for each size pizza, including outliers. Which size appears to be the least expensive? Explain your reasoning.

**Pizza Prices**




**b.** One of the small pizzas had a diameter of 8 inches and a price of \$3.87. Its price per square inch is \$0.077. How was this calculated?

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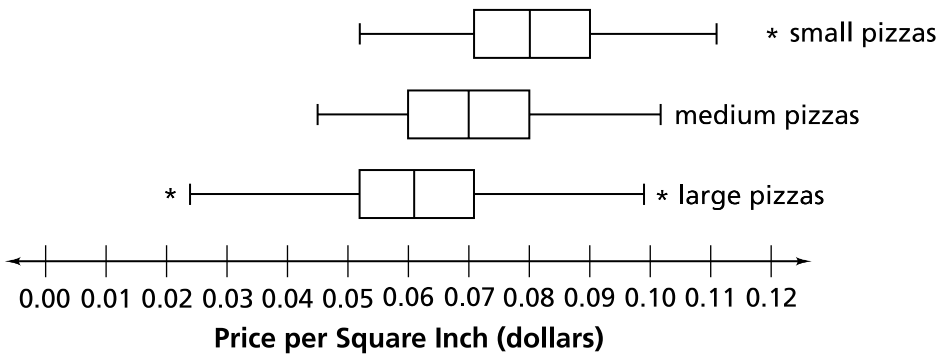
## Additional Practice *(continued)*



**c.** These box plots show the price per square inch of pizza for each size. Which size appears to be the best buy? Explain.

**Pizza Prices per Square Inch**




**d.** Consider your responses to parts (a) and (c). Which set of box plots better reflects the actual price of a pizza? Explain.

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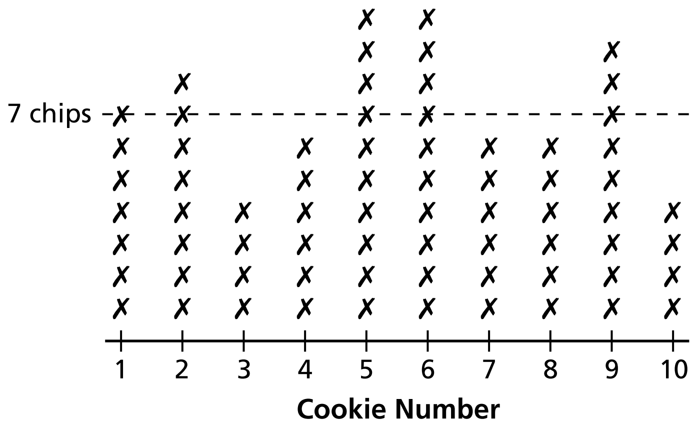
## Additional Practice *(continued)*



**2.** Suppose Jeff and Ted decide to change their advertising slogan to "Seven giant chips in every cookie!" They mix 70 chips into a batch of dough and make 10 cookies from the dough. When they remove the cookies from the oven and inspect them, they count the number of chips in each cookie. Their results are shown below. Notice that only 5 of the 10 cookies contained 7 chips or more.

**Chips in a Batch of 10 Cookies**




**a.** Conduct a simulation to determine the number of chips needed to be added to a batch of 10 cookies until each cookie has at least 7 chips. Carry out the simulation five times so that you have five data values for the number of chips needed.

**b.** What is the minimum number of chips Jeff and Ted should use to be confident that each cookie will have at least 7 chips? Support your answer with statistics and graphs.

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## Additional Practice *(continued)*



**3.** After testing many samples, an egg shipper determined that approximately 3 in every 100 cartons of eggs will contain at least one cracked egg. The company ships 200,000 cartons of eggs every month. Estimate how many cartons of eggs each month will contain at least one cracked egg.

**4.** From a shipment of 500 batteries, a sample of 25 was selected at random and tested. If 2 batteries in the sample were found to be dead, how many dead batteries would be expected in the entire shipment?