

## Question 1

Eight thousand lottery tickets are sold for \$5 each.

One ticket will win \$2,000, two tickets will win \$750 each, and five tickets will win \$100 each.

**Part 1:** Let  $X$  denote the net gain from the purchase of a randomly selected ticket. Construct the probability distribution of  $X$ .

**Solution**

**Answer**

□

**Part 2:** Compute the expected value  $\mu$  of  $X$  and interpret its meaning.

**Solution**

**Answer**

□

**Part 3:** Compute the standard deviation  $\sigma$  of  $X$ .

**Solution**

**Answer**

□