

## Answer on Question #83657 – Math – Statistics and Probability

### Question

An Italian Ice (snowcone) retailer is examining his profits for the spring season of the previous year. He realizes that his sales are based on the daily weather: sunny, average, or cold. He estimates that this year the probability of it being sunny is 0.2, average 0.5, and cold 0.3. His gross sales on these three types of days average \$50, \$35, and \$10 respectively.

- a. Find the expected income in any one day.
- b. If the average supplies cost \$18, what is the expected daily profit?

### Solution

a. Expected income in any one day can be calculated by using the following formula:  $\sum_{i=1}^n P_i * R_i$ , where  $P_i$  is the probability for the return  $R_i$ , and n is the number of scenarios. In this case expected income can be calculated as:

$$0.2 * 50 + 0.5 * 35 + 0.3 * 10 = 10 + 17.5 + 3 = 30.5$$

- b. If the average supplies cost \$18, the expected daily profit is expected daily income minus average supply. It is  $30.5 - 18 = 12.5$

### Answer:

- a. The expected income in any one day is \$30.5.
- b. The expected daily profit is \$12.5.