

## Assignment 2

**4.34** Let  $X$  be a random variable with the following probability distribution:

$x$	-2	3	5
$f(x)$	0.3	0.2	0.5

Find the standard deviation of  $X$ .

**Example 6:** Find the first quartile and third quartile of the following data values:

Time            52     39     44     39     31     40     43     35     44

**4.10** Two tire-quality experts examine stacks of tires and assign a quality rating to each tire on a 3-point scale. Let  $X$  denote the rating given by expert  $A$  and  $Y$  denote the rating given by  $B$ . The following table gives the joint distribution for  $X$  and  $Y$ .

$f(x, y)$		$y$		
		1	2	3
$x$	1	0.10	0.05	0.02
	2	0.10	0.35	0.05
	3	0.03	0.10	0.20

Find  $\mu_X$  and  $\mu_Y$ .

**Example 5.1:** The probability that a certain kind of component will survive a shock test is  $3/4$ . Find the probability that exactly 2 of the next 4 components tested survive.

**Example 5.18:** Ten is the average number of oil tankers arriving each day at a certain port. The facilities at the port can handle at most 15 tankers per day. What is the probability that on a given day tankers have to be turned away?

**Example 6.7:** A certain type of storage battery lasts, on average, 3.0 years with a standard deviation of 0.5 year. Assuming that battery life is normally distributed, find the probability that a given battery will last less than 2.3 years.