**Shade the Venn Diagram to represent the set**.

1. A’ u B’
2. C’ A ∩ (A u B)

**Use a Venn Diagram and the given information to determine the number of elements in the indicated set.**

1. n(U) = 75, n(A) = 45, n(B) = 23, n(C) = 20, n(A ∩ B) = 9, n(A ∩ C) = 6, n(B ∩ C) = 7 and n(A ∩ (B ∩ C) ) = 4 Find n(((A u B) u C)’)

**Use a Venn Diagram to answer the question.**

1. A survey of 260 families showed that

99 had a dog;

76 had a cat;

34 had a dog and a cat;

98 had neither a cat nor a dog, and in addition did not have a parakeet;

8 had a cat, a dog, and a parakeet;

How many had a parakeet ONLY?

 **Find the probability of the given event**

1. A card drawn from a well-shuffled deck of 52 cards is red.
2. A bag contains 5 red marbles, 3 blue marbles, and 1 green marble. A randomly drawn marble is NOT blue.

Solve the Problem

**Solve the problems.**

1. One card is selected from a deck of cards. Find the probability of selecting a red card OR a heart.

**Evaluate the expression**

1. 4!
2. 10P4
3. 12C0

**Use the multiplication principle to solve the problem**

1. License plates are made using 2 letters followed by 2 digits. How many plates can be made if repetition of letters and digits is allowed?

**Solve the problem**

1. A class has 10 boys and 12 girls. In how many ways can a committee of four be selected if the committee can have at most 2 girls?
2. A bag contains 2 blue, 2 red, and 3 green marbles. 4 marbles are drawn at random from the bag. How many different samples are possible which include at least 1 marble of each color?

**Find the probability of the following card hands from a 52-card deck. In poker, aces are either high or low. A bridge hand is made up of 13 cards.**

1. In bridge, 6 of one suit, 4 of another, and 3 of another.
2. In bridge, exactly 3 kings and exactly 3 queens.

**Find the mean for the list of numbers. Round to the nearest tenth.**

1. 30, 29, 93, 26, 112, 89
2. 79, 59, 79, 90, 59

**Find the median.**

1. 10, 1, 21, 12, 23, 44, 37, 37

**Find the mode or modes.**

1. 5, 9, 97, 3, 2, 8, 77, 1, 4, 16
2. 91, 25, 91, 13, 25, 29, 56, 91

**Find the range for the set of data numbers**

1. 28, 40, 20, 50, 52
2. 62, 147, 35, 93, 195

**Find the standard deviation**

1. 7, 15, 20, 19, 18, 20, 17, 11, 6
2. 5, 4, 6, 19, 6, 8, 8, 6

**Find the area under the normal curve.**

1. Find the percent of the area under a normal curve between the mean and 3.01 deviations from the mean.
2. Find the percent of the area under a normal curve between the mean and 0.35 deviations from the mean.

**Solve the problem**

1. Find the percent of the area under the standard normal curve between z = -1.68 and z = 1.68 .

**Find a z-score satisfying the given condition.**

1. 4% of the total area is to the left of z.
2. 25.1% of the total area is to the right of z.

**Assume the distribution is normal. Use the area of the normal curve to answer the question. Round to the nearest whole percent.**

1. A certain grade egg must weigh at least 2.5 oz. if the average weight of an egg is 1.5oz, with a standard deviation of .4oz, how many eggs in a sample of 9 dozen would you expect to be over the 2.5 oz size.

**A company installs 5,000 light bulbs, each with an average life of 500 hours, standard deviation of 100 hours, and distribution approximated by a normal curve. Find the approximate number of bulbs that can be expected to last the specified period of time.**

1. A least 500 hours.
2. Less than 690 hours.

**At one high school, students can run the 100-yard dash in an average of 15.2 seconds with a standard deviation of .9 seconds. The times are very closely approximated by a normal curve. Find the percent of times that are:**

1. Less than 15.2 seconds.

**Solve the problem**

1. If the life in months of a certain type of car battery is normally distributed with a mean of 70 months and a standard deviation of 6 months, what should the guarantee period if the company wants less than 5% of the batteries to fail while under warranty?