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CS 355

Homework 6

I. X is a Normal random variable, E(X) = -3, Var(X) = 4 (So, std dev = 2) What is

1. P(X<2.39)

.9965

1. P(X > -2.39)

.3802

1. P(X<5)

1

II. There is a population of 1,000,000 families, with incomes normally distributed of average 900 coins with standard deviation 200 coins.

We can define destitute as income less than 450 coins, poor as less than 600 coins, middle class as those between 600 and 1200 coins, rich as more than 1200 coins, and opulent as more than 1350 coins.

How many families fall in each class?

Population = 1,000,000.

For the destitute class:

1000000 \* p(x < 450)

= 1000000 \* .012224

= 12224

For the poor class:

1000000 \* p(450 < x < 600)

= 1000000 \* .054583

= 54583

For the middle class:

1000000 \* p(600 < x < 1200)

= 1000000 \* .866386

= 866386

For the rich class:

1000000 \* p(1200 < x < 1350)

= 1000000 \* .054583

= 54583

For the opulent class:

1000000 \* p(x > 1350)

= 1000000 \* .012226

= 12224

III. The average height of an NBA basketball player is 6'7" with standard deviation 3.89. Assume normal distribution of heights,

1. What percent of NBA players are taller than 7 feet?

Given that Mean is 6 feet 7 inches, and the standard deviation is 3.89,

46.93 percent of NBA players are taller than 7 feet.

1. Your favorite player is within the tallest 20% of players. What can his height be?

If a player is within the tallest 20% of players, he would be around 10 feet tall (9 feet 9 inches tall)

1. What percentage of NBA players are shorter than 6'?

42.86 percent of players are shorter than 6 feet.