Time Frame: 50 minutes

Subject Matter: Applications of the Normal Distribution

TELL ME

Objective: TSWBAT find the probabilities for a normally distributed variable by transforming it into a standard normal variable

Standards: DA – 4.8

Materials: PowerPoint Presentation and Worksheets

SHOW ME

Presentation of Information:

The teacher will discuss the following problems.

1. The average admission charge for a movie is $5.39. If the standard distribution of admission charges is normal with a standard deviation of $0.79, what is the probability that a randomly selected admission charge is less than $4.00?

*Source: N.Y. Times Almanac*

Try the following.

1. The average salary for first-year teachers in $27,989. If the distribution is approximately normal with a standard deviation of $3,250., what is the probability that a randomly selected first-year teacher makes these salaries?
2. Between $20,000 and $30,000 a year.
3. Less than $20,000 a year.

*Source: N.Y. Times Almanac*

1. The average daily jail population in the United States is 618,319. If the distribution is normal and the standard deviation is 50,200, find the probability that on a randomly selected day the jai population is
2. Greater than 700,000.
3. Between 500,000 and 600,000

*Source: N.Y. Times Almanac*

Classwork:

1. The average time it takes college freshmen to complete the Mason Basic Reasoning Test is 24.6 minutes. The standard deviation is 5.8 minutes. Find these probabilities. Assume the variable is normally distributed.
2. It will take a student between 15 and 30 minutes to complete the test.
3. It will take a student 18 minutes to complete the test.
4. It will take a student more than 28 minutes to complete the test.
5. A brisk walk at 4 mph burns a average of 300 calories per hour. If the standard deviation of the distribution is 8 calories, find the probability that a person who walks 1 hour at the rate of 4 mph will burn these calories. Assume the variable is normally distributed.
6. More than 280 calories.
7. Less than 293 calories.
8. Between 285 and 320 calories

Homework

1. The average age of CEO is 56 year. Assume the variable is normally distributed. If the standard deviation is 4 years, find the probability that the age of a randomly selected CEO will be in the following range.
2. Between 53 and 59 years old.
3. Between 58 and 63 years old.
4. Between 50 and 55 years old.

*Source: Michael D. Shook and Robert L. Shook. The Book of Odds*

1. Prepare for a quiz

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