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RES500 – Fundamentals of Quantities Analysis

Colorado State University-Global Campus

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Module 4: Normal Approximation to Binomial Distribution

Exercise 29:

Normal Distribution

μ=63.5
σ=2.5
x=68.5
Z-score as the standard score tells how many standard deviations an entity has from the mean. Also, z is the area under the standard normal curve to show the probability of a woman who has a height of 68.5 inches is

$Z = (x - \mu)/\sigma$

$=\frac{68.5-63.5}{2.5}$ = 2.00 that Z=2

Exercise 30:

μ = 27
σ = 3

a) P(X<20) = $P(Z < \frac{20-27}{3})$

$= P(Z < -\frac{7}{3})$

$= P(Z < -2.333)$

= 0.9902 from z-score table that means the probability of %99 that the percentage of the person will purchase a car the averages less than 20 miles per gallon.

b) P(25<X<29) = $P(\frac{25-27}{3} < Z < \frac{29-27}{3})$

= P(-0.6667 < Z < 0.6667)
= P(Z<0.667) – P(Z< -0.6667)
= 0.7454 – 0.2546
= 0.4908 that tells %49 of client will purchase a car the average between 25 and 29 miles per gallon.

Reference:

Z-Score Table | Formula, Distribution Table, Chart & Example (byjus.com)

How to use the Z Table (With Examples) - Statology

Normal Approximation to Binomial Distribution Calculator with Examples - VrcAcademy