STAT 1910 - Winter 2022

Assignment - V

CHAPTER 6

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MARKS: 6

Use closest values if you do not find exact Z or P-values from the standard normal distribution table.

Question 1. (2.0 marks)

Find the area under the standard normal curve

a. to the right of $z = 1.36$
0.0869

b. to the left of $z = -1.97$
0.0244

c. to the right of $z = -2.05$
0.9798

d. to the left of $z = 1.76$
0.9608

e. $P(-1.83 \leq z \leq 2.57)$
0.9613

f. $P(0 \leq z \leq 2.02)$
0.4783

g. $P(-1.99 \leq z \leq 0)$
0.4767

h. $P(z \geq 1.48)$
0.0694

Question 2. (2.0 marks)

Find the z value for each of the following x values for a normal distribution with $\mu = 25$ and $\sigma = 4$.

a. x = 39
   z = 3.5
b. x = 19
   z = -1.5
c. x = 24
   z = 0.25
d. x = 44
   z = 4.75

Also, find the following areas under a standard normal distribution curve with $\mu = 25$ and $\sigma = 4$.

e. Area between x = 20 and x = 27
   0.6678
f. Area from x = 23 to x = 26
   0.0928

Question 3. (1.0 marks)

A cell phone manufacturer company is advertising their product on various media to increase their cell. Suppose their cell phone life span has a normal distribution with a mean of 60 months and a standard deviation of 12 months. The company guarantees that a new one will replace any cell phone that starts malfunctioning within 36 months of the purchase. About what percentage of cell phones this company makes are expected to be replaced?

z = -2
0.0228
About 2.28% of cell phones are expected to be replaced.

Question 4. (1.0 marks)

A recent survey stated that 35% of people working online said that the significant advantage of

working online is no travel. Assume this result is true for the current population of people who work online. What is the probability that in a random sample of 350 people who work from home, 110 to 124 will say that the most significant advantage of working online is no commute?

$\mu = 122.5$

$\sigma = 8.92$

For $x = 109.5$ $z = -1.46$

For $x = 124.5$ $z = 0.22$

$P = 0.5150$

The probability that 110 to 124 people will say the most significant advantage of working online is no commute is 0.5150.